DOCUMENT RESUME

ED 084 359	CE 000 481
AUTHOR	Stephenson, Stanley P., Jr.
TITLE	Economics of Job Search: A Biracial Analysis of Job Search Behavior of Urban Male Youth Ages 18-22.
SPONS AGENCY	Manpower Administration (DOL), Washington, D.C. Office of Research and Development.
PUB DATE	Jan 73
NOTE	163p.; Ph.D. Dissertation, Indiana Univ.; Presented at the Econometric Society Meetings (Toronto, Canada, 1972)
AVAILABLE FROM	National Technical Information Service, Springfield, Va. 22151 (PB 216 163, MF $1.45, HC $6.00)
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	*Behavior Patterns; Doctoral Theses; Economic Research; Expenditures; *Job Applicants; Job Market; *Males; Negro Employment; Occupational Aspiration; Questionnaires; *Racial Differences; *Urban Youth; Work Attitudes; Youth Employment
IDENTIFIERS	*Job Search

ABSTRACT

This study presents and tests an econometric model of job search behavior for youth. The main hypothesis is that differences in search behavior help account for youth-adult employment differences and that within the youth group, black-white unemployment and earnings differentials can be partially explained by job search behavior. Endogenous variables considered are cost of the search, the supply wage rate, the length of search, and the expected duration of work on the next job. Explanatory variables fit into four categories; economic variables, attitudinal indexes, behavioral variables, and demographic datum. The surveyed data was from 150 white and 150 black, young, urban, unemployed men from the field offices of the Indiana Employment Security Division in Indianapolis during November, 1971. Results showed black youth to have lower weekly search costs than whites, but longer search periods and consequent higher total search costs. Supply wage declines as search length increases. (Author/AG)

FILMED FROM BEST AVAILABLE COPY

ED 084359

PB-216 163

Economics of Job Search

a biracial analysis of job search behavior of urban male youth ages 18-22

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Indiana University

prepared for
Manpower Administration

JANUARY 1973

Distributed by

CE 000 481

ED 084359

PB 216 163

ECONOMICS OF JOB SEARCH:
A BIRACIAL ANALYSIS OF JOB SEARCH BEHAVIOR OF URBAN MALE YOUTH AGES 18-22

by

Stanley P. Stephenson, Jr.

A thesis submitted to the faculty of the Graduate School in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Economics, Indiana University

December, 1972

"The material in this project was prepared under Grant No. 91-18-72-02 from the Manpower Administration, U. S. Department of Labor, under the authority of title I of the Manpower Development and Training Act of 1962, as amended. Researchers undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor."

Reproduction in whole or in part is
permitted for any purpose of the United
States Government

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U S Department of Commerce
Springfield VA 22151

STANDARD TITLE PAGE FOR TECHNICAL REPORTS

1. Report No. DLMA 91-18-72-02-1

2. Govt. Accession No.

3. Recipient's Catalog No. PB 216-163

4. Title and Subtitle
ECONOMICS OF Job SEARCH:
A Biracial Analysis of JOB Search Behavior in Urban Male Youth, Aged 18-21

5. Report Date
January 1973

6. Performing Organization Code

7. Author(s)
Stanley P. Stephenson, Jr.

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Department of Economics
Indiana University
Bloomington, Indiana 47401

10. Project/Task/Work Unit No.

11. Contract/Grant No.
DL 91-18-72-02

12. Sponsoring Agency Name and Address
U.S. Department of Labor
Manpower Administration
Office of Research and Development
1111 20th St., N.W. Washington, D.C. 20210

13. Type of Report & Period Covered
Final Report

14. Sponsoring Agency Code

15. Supplementary Notes

Presented at 1972 Econometric Society Meetings, Toronto, Canada

16. Abstracts

This study presents and tests an econometric model of job search behavior for youth. The main hypothesis is that differences in search behavior help account for youth-adult unemployment differences and that within the youth group, black-white unemployment and earnings differentials can be partially explained by job search behavior.

17. Key Words and Document Analysis. 17a. Descriptors

a. Descriptors
Economic analysis; Labor; Negroes; Unemployment

17b. Identifiers/Open-Ended Terms

Jobseeking

17c. COSATI Field/Group 5C

18. Distribution Statement
Distribution is unlimited. Available from National Technical Information Service, Springfield Va., 22151.

19. Security Class (This Report) UNCLASSIFIED

20. Security Class (This Page) UNCLASSIFIED

21. No. of Pages 162

22. Price

FORM CFSTI-35 (4-70)

USCOMM-DC 65002-P70

Accepted by the faculty of the Graduate School of Indiana University, in partial fulfillment of the requirements for the Doctor of Philosophy Degree.

Doctoral Committee: ______________________, Chairman

William H. Andrews

ABSTRACT

There are two aspects to the problem examined in the study. The first concerns high youth unemployment rates; the second black/white differences in unemployment and earnings. A basic premise of this study is that lack of job search information to youth entering the labor market, especially black youth,increases youth unemployment, and contributes to black/white differences in earnings, unemployment, and mobility. To examine this premise this study developed a simultaneous-equation model of job search.

In keeping with the concept of job search as an investment in human capital, the endogenous variables of the model are the cost of search, the supply wage rate, the length of search, and the expected duration of work on the next job. Search cost includes travel costs by distance and mode, opportunity costs for those involuntarily unemployed, and moving and other expected search costs. The explanatory variables fit into four categories: (1) economic variables, such as current income per week, real and financial assets, other family income, and the hourly pay rate for the last job and weeks worked on the last job; (2) attitudinal indexes of interview anxiety; achievement values, and financial risk; and (3) behavioral variables unique to job search such as the average number of personal contacts per week and the method or search technique used and (4) demographic datum like age and education.

The model contained four equations and twenty-four variables. To test the model survey data of 150 white and 150 black, young, urban, unemployed men were collected from field offices of the Indiana Employment Security Division in Indianapolis during November, 1971. The main method of analysis involved a two-stage regression estimation of the coefficients and parameters of the job search model. In addition, cost/benefit analysis of investment in job search was carried out using solution values to the statistical model.

Results showed black youth to have lower weekly search costs than whites; however, because black youth averaged longer search periods, their total search costs exceeded that of whites. Further results support earlier research that the supply wage declines as search length increases.

ACKNOWLEDGEMENTS

A dissertation, more than any work done by the student, is a product of the efforts of several people. I wish now to acknowledge my thanks to these individuals.

It has been a distinct privilege for me to work under Professor Ernst W. Stromsdorfer, my thesis chairman. His knowledge, patience, and understanding made this study possible.

I also wish to thank Professor James G. Witte, Jr., Professor Ira Horowitz, and Mrs. Witte. The first two provided guidance as thesis committee members and all three were classroom teachers of mine. I also wish to thank Professor William Andrews, committee member, for his notes and comments.

In addition to the members of my thesis committee, I wish to thank several other individuals. First, I thank my fellow students at Indiana University who gave me encouragement and support. Secondly, I wish to thank Professors Nicholas DeWitt and Mark Erenburg of Indiana University, Professor David W. Stevens of Missouri University, Dr. Charles Palit of Wisconsin and Professor Teh-Weh Hoo of Pennsylvania State University, and Dr. John R. Maiolo, Gary Income Maintenance Experiment.

Thirdly, I wish to thank Dr. Howard Rosen, Director of the Office of Research and Development, Manpower Administration, U.S. Department of Labor, who supported this research, and several officials of the Indiana Employment Security Division, notably Mr. John F. Coppes, Director, and Mr. Dwight Kelley, Mr. Martin Heller, and Mr. Lou Dolnics. Also, I wish to thank all those who provided help in interviewing, coding, computer work, and typing. Finally, I gratefully thank Mildred Hennessy for typing and editing the final draft.

Professional aid is only a portion of needed help to complete a dissertation. At least as great a part must go to my beautiful wife, Nancy.

TABLE OF CONTENTS

Page

INTRODUCTION 1

- The Problem 1
- Main Objectives of Study 6
- Nature of the Data 7
- General Job Search Model 8
- Structure of Study 12

CHAPTER II JOB SEARCH LITERATURE: AN EMPIRICAL AND A THEORETICAL REVIEW 15

- Wages and Job Search Behavior 17
- Race, Wages, and Job Search Behavior 17
- Race, Labor Market Conditions, and Job Search Method 21
- Race, Skill Level, and Job Search Method 21
- Socio-Economic Class and Job Search Behavior 22
- Social Psychology Measures and Job Search Behavior 23
- Unemployment Duration and Wage Aspiration Level 26
- Youth and Wage Aspirations 29
- Factors Affecting Youth Unemployment Duration 30
- Dimensions of Labor Market Information 32
- Review of Job Search Theory 34
- Theoretical Proposition on Wage Aspiration and Unemployment Duration 35
- Theoretical Proposition on Wage Gains from Search 38

CHAPTER III RISK ATTITUDE, RESERVATION WAGE, AND A GENERAL JOB SEARCH MODEL 45

- Risk Attitude and Job Search Behavior 45
- Wage Aspirations, Acceptance Wage, and Wage Expectation 51
- Job Search Model: Investment in Job Search 53
- Job Search Model: A Behavioral Model of Youth Job Search 59

CHAPTER IV AN ECONOMETRIC ANALYSIS OF YOUTH JOB SEARCH BEHAVIOR 80

- Data Sources: Definitions of Terms Used in the Study 80
- Assumptions Regarding the Theoretical Specifications 93
- Empirical Results: Regression Analysis 100
- Empirical Results: Cost-Benefit Analysis 112

CHAPTER V CONCLUSION 121

APPENDIX 130

- A. Additional Statistical Tables 130
- B. Job Search Questionnaire 134

VITA 151

INTRODUCTION

This study is an analysis of the job search behavior of young men. The main goal is to examine how job search differences between white and black youth contribute to differences between these groups in earnings, unemployment duration, and unemployment frequency.

The Problem

The main problem to be examined in this study is high youth unemployment. This category in turn is divided into white unemployment and black unemployment, each of which show varying characteristics. A second area of concern which is possibly related to high youth unemployment is racial wage differences.

The high rate of youth unemployment, as compared with overall adult unemployment in the United States, and its attendant racial differentiation, have been a rather constant phenomenon for the last twenty-five years. For example, consider the entries in TABLE 1.1[1] which compare unemployment rates for selected years.

This study is concerned with the job search behavior of young men aged 18 to 21 years. Hence the entries in TABLE 1.1 compare male adult to male youth unemployment rates and divide the latter category into white and black youth. Notice that the youth unemployment rate is about two to three times the comparable adult entries. For older youth who are 20 and 21 years, it is likely that their unemployment rate exceeds the available data shown in TABLE 1.1 on the rates for youth 20 to 24 years. That is, men aged 20 and 21 years, because they are still young, probably have unemployment rates somewhat between the rates for those aged 18 and 19 years and those aged 20 to 24 years. Within the youth category, black youth aged 18 and 19 have consistently greater unemployment rates than comparable white youth. For older youth, the relative difference between races in unemployment rates is less severe than for teenagers, yet older white youth average about 57 percent the unemployment rates of older black youth.

TABLE 1.1 COMPARATIVE UNEMPLOYMENT RATES

YEAR	ADULT MALES	YOUTH MALES		WHITE MALE YOUTHS		BLACK MALE YOUTHS	
	Age 16 & Over	Age 18 & 19	Age 20 to 24	Age 18 & 19	Age 20 to 24	Age 18 & 19	Age 20 to 24
1948	3.6	9.6	6.9	9.4	6.4	10.5	11.7
1954	5.3	13.2	10.7	13.0	9.8	14.7	16.9
1960	5.4	15.0	8.9	13.5	8.3	25.1	13.1
1966	3.2	10.2	4.6	8.9	4.1	20.5	7.9
1971	5.3	15.0	10.3	13.5	9.4	26.0	16.2

Source: 1972 Manpower Report of the President, United States Department of Labor, Superintendent of Documents, U. S. Printing Office, Tables A-15 and A-16,pages 177 and 178, respectively.

A second problem involves racial earnings differentials. Mean earnings of blacks in the United States are at present about 65 percent of those of whites.[2] Earnings may be defined as the product of time worked and the pay per time unit. Thus part of the black-white earnings differential is due to racial unemployment differences, or differences in time worked. Yet, the greater part of the racial earnings disparity is attributable to differences in wage rates, due partly to the concentration of blacks in low-income occupations, such as service categories.[3]

A variety of reasons have been suggested for the problems of youth unemployment and racial unemployment and wage differentials. These reasons include: (a) lack of training and job experience by youth,[4] (b) deteriorating demand for so-called entry jobs usually held by inexperienced youth and/or unskilled blacks, (c) minimum wage laws,[5] (d) statutory discrimination against hiring youth by government agencies,[6] (e) de facto discrimination by union-management hiring,[7] (f) the rise in the relative supply of youth during the 1960's,[8] (g) a dual labor market demand for whites and blacks,[9] and (h) factors unique to young people, such as high seasonal participation rates and uncertainties created by the military draft.

Another characteristic of the youth labor market is high mobility rates between jobs, between occupations, and into and out of the labor force.[10] This high mobility is no doubt closely correlated with high youth unemployment measures and probably involves many of the same reasons.

We may summarize youth labor markets as exhibiting high mobility and high unemployment, with racial differences in youth unemployment. In addition, there may be racial differences in wages between black and white youth. A basic premise of this study is that these phenomena, and their causes are interrelated and that differences in job search behavior is a common bond or link contributing to each phenomenon. The notion that job search behavior is the keystone is strongly implied by observed national data. Consider TABLE 1.2.

The entries show the unemployment rates by reason for being unemployed. The only youth data available are for both sexes, aged 16 to 19 years. In TABLE 1.1, the disparity between youth and adult unemployment rates is apparent. Yet the data of TABLE 1.2 suggest why youth have such high unemployment rates. The information indicates clearly that high youth unemployment stems mainly from the hunt for the first job or for a new job after a period of non-labor force participation. The years 1968 to 1971 were not unique. The same tendency for the major proportions of unemployed youth to be new entrants or re-entrants was observed in the period 1964 to 1966.[11]

TABLE 1.2 UNEMPLOYMENT RATES, BY REASON FOR UNEMPLOYMENT: ANNUAL AVERAGES 1968-1971

1968	Total Unemployed	Left Last Job	Lost Last Job	Re-Entrant	New Entrant
Total	3.6	.5	1.3	1.2	.5
16 to 19 yrs. (both sexes)	12.7	1.5	1.9	4.2	5.0
1969					
Total	3.5	.5	1.2	1.2	.5
16 to 19 yrs. (both sexes)	12.2	1.5	1.8	4.2	4.8
1970					
Total	4.9	.7	2.2	1.5	.6
16 to 19 yrs. (both sexes)	15.3	1.7	2.8	5.2	5.5
1971					
Total	5.9	.7	2.7	1.7	.7
16 to 19 yrs. (both sexes)	16.9	1.6	3.1	5.5	6.7

Source: 1972 Manpower Report of the President, United States Department of Labor, Superintendent of Documents, U. S. Printing Office, Table A-21, pp. 182-184.

The question arises as to whether youth search for jobs more frequently, or average longer periods of unemployment duration per search, than adults. National data show that youth unemployment duration is no greater than the adult rate. Thus it is the frequency of search that leads to high measures for youth unemployment.

Within youth labor markets, if unemployment durations or turnover rates differed by race, then we might infer that these differences cause racial unemployment differences. Indeed, a recent study by Smith and Holt does just that for prime age-groups.[12] National data show the frequency of search, not the length per search, to cause higher black unemployment. Unfortunately, the authors leave several questions unanswered. Why do blacks quit jobs more frequently? Does each group incur the same monetary returns from search net of search costs?

The literature is unclear also on the main cause of high black teenage unemployment rates. But, explaining these rates may aid us in understanding both high youth unemployment and black/white unemployment rate differences. Given that the occasion and frequency of job hunting are interrelated with high youth unemployment, what are the problems encountered by youth in seeking work? Is the same job information available to both groups. Do skill shortages explain search frequency?

To begin understanding racial unemployment differences, we need information on comparative skills, risk attitude, family background, job histories, motivation, reservation wages, and job search techniques of both white and black youth. This study proposes to partially fill the existing void in this area by using survey data on job-seeking youth.

Main Objective of Study

Specifically, this study seeks to develop and test empirically a model of job search behavior for non-student black and white youth aged 18 through 21. This model provides a test of the two main hypotheses of the study: (1) For urban youth, job search behavior differs along racial lines; and (2) This differential behavior contributes to observed differences between white and black youth in earnings, unemployment, and job mobility. Previous studies have established that for young workers search methods differ by race and may contribute to unemployment differences.[13] The present study is unique in that it develops an econometric framework which joins suggestions of previous empirical studies with recent theoretical job search studies. The model is then tested using survey data collected especially for this study.

Nature of the Data

The present study is based on the job-seeking behavior of black and white urban male youths aged 18 to 21 whose education in years of school completed is between 8 and 12, who at the time the survey was undertaken were unemployed and currently seeking full-time work in the Indianapolis labor market. A questionnaire was administered concurrently to a random sample of 151 white and 149 black male youth falling in the above categories who entered the field offices of the Indiana Employment Security Division in Indianapolis between October 22 and December 10, 1971. Data on labor market histories, skill training, socio-psychological indexes, demographic measures, and job search variables were collected by means of personal interviews. While participation in the study was strictly voluntary, it was agreed before the interview that each client would receive $5.00 cash upon completion of the interview. This was done to elicit his cooperation.

In addition to the questionnaire, a second instrument was used to check for consistency in job histories, age, and education. With the permission of the client, a copy was made of the file kept on each client by the Indiana Employment Security Division. Copies of both instruments are given in the Appendix.

General Job Search Model

Job search behavior refers to the methods by which people seek employment. In this study, search data are analyzed by econometric models designed to describe job search behavior. Interactions between the variables specified in the model of job search reveal the underlying nature of job search behavior. As mentioned earlier, the model used here is an application of theoretical studies of job search designed to include variables such as those listed above. On page 10, the operational model of this study conceives of job search as an investment in human capital in which the searcher attempts to maximize the present value of a discounted flow of earnings from a new job, net of its acquisition or search costs.[14] In a later chapter, the ideas underlying construction of the model are examined in detail. At present, a general diagram of the search model will further understanding of the direction of the study. Schematically, the model can be shown as a flow diagram in which the direction of causality runs from left to right.

We assume the exogenous variables to be the treatment or given factors which affect the endogenous terms. For most of our discussion, we will assume the exogenous terms to be independent of one another, with the exception of our treatment of the rare variable. As explained in a later chapter, we allow for interaction between the variable race, and other exogenous terms. Regarding the endogenous variables, as in all simultaneous-equation models, we allow feedbacks, or allow these variables to affect one another. In a later chapter, we present the formal rules for combining the endogenous and predetermined variables into an econometric model. Then using survey data, solution values for the endogenous variables are derived. Finally, we compute a wealth term, using a simple algorithm for computing the present value of a future flow of earnings for the individual's investment in job search.

Figure I JOB SEARCH MODEL

A. Predetermined Or Exogenous Variables

Demographic Datum

Age, Education, Marital Status, Skill Training, Race

Economic Variables

Nonwork Income, Real and Financial Assets, Other Family Income, Hourly Pay of Last Job, Weeks Worked Last Job, Etc.

Attitudinal Indexes

Risk Attitude, Interview Anxiety, Achievement Values

Search Variables

Method of Search Personal Contacts Per Week, Etc.

B. Endogenous Variables

Aspired Wage Rate Cost of Search Per Week, Length of Search In Weeks, Expected Weeks on New Job

C. Target Variable

Wealth

The model presented in Figure I is derived from theoretical and empirical job search studies. The theoretical literature has sought to explain aggregate unemployment rates or wage inflation rates in terms of various assumptions about interactions between the endogenous variables and the wealth measure At the same time, a growing body of empirical work has sought to explain the way in which the predetermined variables affect one another or, in some cases, how they affect the endogenous variables. For example, Sheppard and Belitsky sought to explain search method and search length in terms of attitudinal measures.[15] In the present study, we assume that individuals select jobs rationally, i.e., as if they weigh the interrelationships between the endogenous variables of the model. Because age, education, job information, or psychological state also may affect what job is ultimately chosen, we consider these exogenous variables as treatments, or as given. In this study, the effect of the treatment, race, on differential job search behavior is our special consideration. We seek answers to the following questions:

1. Do young black men make the same absolute and relative monetary investments in job search as do young white men?
2. Do differences in search cost between races explain differences in length of job search?
3. Do wage aspirations for young men decline with the duration of unemployment? Can racial differences in the rate of decline be distinguished?
4. Does attitude toward risk explain job search behavior of young men?
5. Does search method differ by race?
6. Is the method of search used indicative of differences in search cost, or search length.
7. Do young men approach job search in the manner assumed by virtually all theoretical job search writers; that is, do young men collect several job offers, i.e., do people weigh alternatives before selecting the best?

We shall return to these issues in subsequent chapters.

Structure of Study

The method used in this study is econometric analysis of a theoretical job search model. Continuity with past discussions of these issues requires a review of the literature, and this is contained in Chapter II. Chapter III uses the literature review to develop and present a general simultaneous-equation model of job search behavior. Once the model is specified, the hypotheses of this study are tested statistically and the results are presented in Chapter IV. A two-stage least-squares regression procedure is used to estimate the regression coefficients in the simultaneous-equation model. Also, in Chapter IV, wealth values are compared by race, using the solution values for the endogenous variables of the simultaneous-equation model. Finally, Chapter V presents the conclusions, possible policy implications, and future research suggestions that emerge from this study. A number of tables, which further describe the Indianapolis sample used in this study, are given in the Appendices.

Footnotes

1. Note: The years shown were selected arbitrarily yet reflect the nature of all entries in the period 1948-1971.

2. Kenneth Arrow, *Some Models of Racial Discrimination in the Labor Markets*, (Santa Monica: The Rand Corporation, RM-6253), February 1971, p. 2.

3. *Ibid*., p. 3 and A. Wohlsetter and S. Coleman, *Race Differences in Income*, (Santa Monica: The Rand Corporation, RM-578E, November 1970.

4. See Survey of these and other reasons in Edward Kalachek, *Youth Labor Markets*, (Ann Arbor: Institute of Labor and Industrial Relations, University of Michigan-Wayne State University), 1970. Also see Jeffrey Piker's annotated bibliography of 189 studies over the past 15 years, *Entry Into the Labor Force*, A survey of Literature on the Experience of Negro and White Youths, (Ann Arbor: Institute of Labor and Industrial Relations, The University of Michigan-Wayne State University, 1969).

5. Thomas Gale Moore, "The Effect of Minimum Wages on Teenage Unemployment Rates," *The Journal of Political Economy*, July 1971.

6. R. A. Nixon, *The Labor Market Framework of Job Development: Some Problems and Prospects*, (New York: Center for the Study of Unemployed Youth, New York University), 1967, pp. 15-20.

7. Daniel E. Diamond and Hrach Bedrosian, *Industry Hiring Requirements the Employment of Disadvantaged Groups*, (New York: New York University School of Commerce), 1970, p. 7.

8. Hugh Folk, "The Problem of Youth Unemployment", *The Transistion from School to Work*, (Princeton, N. J.: Princeton University, Industrial Relations Section Research Report Series), No. III, May 1968, pp. 76-107.

9. Peter B. Doeringer and Michael J. Piore, *Internal Labor Markets and Manpower Analysis*, (Lexington, Mass., D. C., Heath & Co.), 1971, pp. 113-163.

10. Op.Cit., Folk.

11. Kathryn D. Hoyle, "Why the Unemployed Look for Work," U. S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 78, p. 35.

12. Ralph E. Smith and Charles C. Holt, "A Job-Search Turnover Analysis of the Black-White Unemployment Ratio," A Working Paper, Washington, D. C. The Urban Institute, 1971.

13. Robert C. Miljus, Herbert S. Parnes, Ronald M. Schmidt and Ruth S. Spitz, "Some Correlates of the Labor Market Status of Male Youth," in *The Transistion from School to Work*, Op.Cit., pp. 47-55.

14. See Reuben Gronau, "Information and Frictional Unemployment," American Economic Review, June 1971, pp. 290-301, and the references given there.

15. Harold L. Sheppard and A. Harvey Belitsky, The Job Hunt, (Baltimore: The W. E. Upjohn Institute for Employment Research, The John Hopkins Press), 1966.

CHAPTER II

JOB SEARCH LITERATURE: AN EMPIRICAL AND A THEORETICAL REVIEW

Models of job search behavior that attempt to explain differences in earnings or unemployment have largely come into being during the 1960's with the convergence of three channels of economic thought accounting for their emergence. Axel Leijonhufud affirmed and extended the macroeconomic theory of the Keynesian revolution[1]; studies by Alice Kidder[2] and Melvin Lurie and Elton Rayack[3] showed training not to be a panacea for removing racial wage and employment disparities; and George Stigler extended the application of capital theory to labor markets by considering another cause for income differentials[4].

Inherent in all these endeavors was a concern for the implications of limited labor market information. Leijonhufud was concerned with the likelihood of persistent unemployment disequilibrium. Due to the absence of Walras' auctioneer, the economy gropes toward a labor market clearing, using imperfect wage and price information. Since market adjustments take time, frictional imbalances are created which have cumulative effects such that job vacancies and unemployed job seekers can co-exist. Differences in unemployment duration can thus be explained in terms of privileged job seekers, i.e. those with better information, who require less time to find jobs, other things being equal.

The second channel of economic thought had its historic antecedents in the labor mobility studies conducted over the last four decades. These studies stressed the critical role that job search played in the labor market. How one found a job and what difference occupational category, skill level and education made regarding the best job-finding method were the types of issues examined. For the most part, these early labor mobility studies were concerned with prime-age labor market groups, not specifically youth. It was not until 1966 that black/white job search comparisons were made, and then the comparisons were not on youth. Nonetheless, they suggested interactions between labor market information differences and wage and unemployment differences.

The third channel, initiated by George Stigler, developed a number of theoretical models suggesting wage and unemployment differences as due to differences in job search behavior. For example, Stigler suggested the variance of the wage distribution as a measure of ignorance of labor market information: the greater the dispersion, the greater the potential gain from job search. Job offers, in wage level and job duration, were to be weighed against the cost of search. These points are elaborated upon later.

The purpose of this chapter is to examine the existing literature on job search in order to draw behavioral implications for a youth job search model stressing racial differences. The first part of the chapter reviews empirical studies, many of them labor mobility studies, in which informal, tabular analyses were used and econometric model-building played little, if any, part. The purpose in examining these studies will be to see how race, economic conditions, skill level, and attitudinal variables are associated with differences in job search behavior.

In the second part of the empirical review we consider factors affecting the duration of unemployment, or time spent in searching for a job. As empirical research on length of search is rather limited, this section is more speculative than the first section. The final section briefly reviews the literature on job search and derives two propositions: the first on wage gains from search; the second on job search duration.

Wages and Job Search Behavior

The early research in the area was surveyed by Herbert S. Parnes in 1954.[5] Parnes found that no single index, such as an hourly wate rate, served to explain why job searchers accepted a particular work offer. With respect to method or technique of job search, the concensus of Parnes and other researchers of the mid-1950's was that job choice by manual workers was usually made in ignorance of alternatives.[6] Jobs were found mainly by informal methods such as random applications at company gates or via job information obtained from friends and relatives. Moreover, the general agreement among early writers was to the effect that only a small minority of unemployed workers really weighed and compared marginal differences in alternative job offers.

Race, Wages, and Job Search Behavior

As with earlier efforts, the predominant method in the 1950's and 1960's was crude empiricism. Research inquiries were distinguished by whether they considered the additional effects of occupational differences, relative labor demand, skill training, various socio-psychological indexes, and other diverse factors.

Several writers examined occupational search differences.[7] The usual finding was that blue-collar workers found jobs by using informal methods, while white-collar workers were more apt to use formal methods. Formal methods as opposed to the informal methods described above, are those search methods using an institutional intermediary like an employment agency, union hall, or newspaper to acquire job information. Alice Kidder suggested differences by race in search method, *viz*., greater reliance by blacks on formal search methods kept the blacks in low paying occupations and contributed to wage differentials within occupations.[8] Another labor market survey by Ullman and Taylor of the Chicago area found that within a given occupation the best jobs are filled informally and suggested one reason why: high wage employers search less and, thus, are less apt to use institutional intermediaries than low wage firms.[9] Presumably, the grapevine works better with high-wage firms. Thus, blacks, being more dependent on formal information sources, suffer lower wages than whites, through being denied contact with high-wage firms.

Table 2.1, with the exception of Ullman-Taylor, is not occupation-specific. However, it does suggest the Kidder finding was less than universal and may have been due some other factors.

TABLE 2.1 JOB SEARCH BY RACE AS SHOWN IN SELECTED STUDIES

Author	Kaufman Shaefer (1)		Lurie Rayack (2)		Rocha (3)		Kidder (4)		Ullman-Taylor (5)		Champayne Prater (6)	
Date of Study	1965		1964		1965		1961 1965		1961 1963		1968	
Labor Market Area	(nine cities)		Middleton, Conn.		Baltimore, Maryland		Boston, Mass.		Chicago, Ill.		Houston, Texas	
Sample Composition	ALL	BLACK	White,	Black	White,	Black	White,	Black	White*	Black**	White,	Black
Sample Size	867	196	100	150	30	30	144	200	290	151	53	28
Formal										9%		
1. State Employ. Agency	7	6	2	9	7	7	6	9	3		6	7
2. Priv. Employ. Agency	-	-	10	3	3	3	3	6	10			
3. Newspaper	4	8	3	3	17	10	21	31	14		6	4
4. Unions	-	-	4	0	0	3	-	-	-			
5. Educational Institution	26	17	-	-	37	7	-	-	-		0	7
Informal										84%		
6. Friends & Relatives	24	28	36	32	27	43	INFORMAL		37			
7. Direct Application	35	33	45	53	7	23	70	54	9		53	57
8. Re-Call	-	-	-	-	0	3			8			
Other	4	8	-	-	1	0			1	1%	36	25

*White, Keypunch Operator **Black, Unskilled Worker

Sources of Entries in Table 2.1

(1) Jacob J. Kaufman, Carl J. Schaefer, Morgan V. Lewis, David W. Stevens, and Elaine W. House, The Role of the Secondary Schools in the Preparation of Youth for Employment. University Park, Pa., Institute for Research on Human Resources, The Pennsylvania State University, February, 1967).

(2) Melvin Lurie and Elton Rayack, "Racial Differences in Migration and Job Search: A Case Study," Southern Economic Journal, Vol. 33, July 1966, pp. 81-95.

(3) Joseph R. Rocha, Jr., "The Differential Impact of an Urban Labor Market Upon the Mobility of White and Negro Potentially Skilled Workers," unpublished Ph.D. dissertation, The University of Iowa, 1966.

(4) Alice Kidder, "Interracial Comparisons of Labor Market Behavior," unpublished Ph.D. dissertation, Massachusetts Institute of Technology, August, 1967.

(5) Joseph C. Ullman and David P. Taylor, "The Information System in Changing Labor Markets" Proceeds of Annual Meetings, 1965, (Madison, Wisconsin: The Industrial Relations Research Association, 1966) pp. 276-289.

(6) Joseph E. Champagne and Robert L. Prater, Teenage Employment: A Study of Low Income Youth in Houston, Texas (The Center for Human Resources, University of Houston, Houston, Texas) July 1969.

Race, Labor Market Conditions, and Job Search Method

The Ullman-Taylor paper, while not actually examining the effect of race, found unskilled black men shifted from informal to formal methods of job search in response to deteriorating demand for unskilled workers.[10] This was the opposite result of that implied by earlier research which did not distinguish between black and white job seekers. Lurie-Rayack, in their review of job search studies, ranked the studies by high local unemployment vs. firm or expanding employment.[11] Informal methods were successfully used relatively more in the high unemployment areas. The main point is that black job seekers in order to find jobs during a period of low demand for labor, must rely relatively more than their white counterparts on formal search methods. This dependence, in turn, may exacerbate black unemployment rates.

Race, Skill Level, and Job Search Method

Most jobs in America are found by informal methods. It is plausible, however, that skill level or occupational differences effect choice of search method. Differences in relative use of search method by race were found even after Lurie-Rayack controlled for the effects of age, education, and skill level, or occupational category. Their New England study discovered blacks to be nearly four times as likely as whites to have found their job through the state employment agency. Both white and black clerical and skilled workers tended to use formal search methods more than unskilled workers of either race. Within each skill, however, blacks were more apt to use formal search methods than whites. The authors suggested that poor quality informal sources for blacks led to greater dependence on formal sources, which, in turn, caused blacks to find only the less desirable jobs and contributed to black unemployment.

Socio-Economic Class and Job Search Behavior

Family background and job search behavior of youth was the subject of a recent study.[12] Using 1960 census tract data on family income, education, and occupational status, Mr. Singell developed socio-economic indexes of Detroit high school districts. Next, he compared the early labor market experience of a random sample of new high school graduates. The sample was stratified by upper, middle, and lower socio-economic school districts and drew 20 youths from each district. He found youths from lower socio-economic classes experienced longer job search periods and found jobs paying lower wages than the other classes. Problems in finding jobs were offered as an explanation for the great labor market entry difficulties of the lower socio-economic group.

Like the general population, the 60 youths in the Detroit study found jobs mainly from leads obtained from friends and relatives. Within the total sample, however, search differences were found. Sixty-six percent of youths in the upper socio-economic strata found jobs this way compared to only 57 percent of youths in the lowest group. The small sample makes it difficult to draw statistical inferences from this result. Of the total sample, 20 percent found jobs by direct gate application. However, 80 percent of youths using gate applications found jobs _within 10 blocks of their homes_. Both factors, relatively less use of friends and relatives and the likelihood of poorer jobs being found in poorer neighborhoods, operated to the disadvantage of lower class youths. Unfortunately, Singell did not offer suggestions as to specific reasons for differences in search duration and job finding success. For example, does lack of transportation contribute to greater dependence on jobs in the local area?

An additional finding of Singell was that very few young workers in any socio-economic class rejected an offered wage. This supports the Parnes survey mentioned above.

Social Psychology Measures and Job Search Behavior

Perhaps the most thorough tabular analysis of job search behavior of unemployed workers in an urban area is that provided in The Job Hunt by Harold L. Sheppard and A. Harvey Belitsky.[13] The effects of race, sex, skill level, and other factors were examined with regard to how they affected job search behavior and job finding success. What was most unique about the Sheppard-Belitsky study, however, was their use of attitudinal indexes to explain job search behavior.

Since unemployed workers seeking jobs are subject to all sorts of fears, aspirations, and expectations, Sheppard and Belitsky used a series of multiple-choice interview questions to establish scores of interview anxiety and achievement motivation.* The questions for measuring interview anxiety concerned degree of nervousness in a hypothetical job interview situation. The authors found individuals with low anxiety scores were more likely to find a job by direct gate applications, whereas more anxious persons used an institutional intermediary like the state employment agency.

Achievement value, an idea developed by Bernard Rosen,[14] refers to the willingness of an individual to strive for economic success, particularly in regard to interclass mobility such as moving from an unemployed to employed status. Again using multiple-choice questions, a score was derived that purportedly measured the extent to which a person was willing to plan, to [illegible] to sacrifice present for future satisfactions. In their study, Sheppard-Belitsky found that individuals with high achievement-value scores were more apt to use an active search method, namely, direct gate applications, while those receiving low scores used the employment service, friends, or less active methods. In addition, both white and black subjects who had high achievement-value scores had a greater probability of find a new job by the time interviewed for the study than those persons with low scores.

---

*As the achievement motivation score required the subjective analysis of a professional psychologist, the present study uses and, hence, here discusses the other two terms only.

Up to this point, we have been concerned with identifying factors designated in past research as having some association with differential search behavior. The difficulty with generalizing these studies stems primarily from the informal, tabular analysis, the differences in economic conditions between each time and geographic region. Despite this difficulty, however, it seems clear that job search behavior differs between and within occupations, and may operate to the wage disadvantage of blacks. Further, it is evident that any model claiming to explain wage differences due to job search behavior should allow for differences in skill, occupational distribution, economic conditions, socio-economic class, achievement values and interview anxiety.

Empirical evidence on explaining differences in unemployment by race as related to job search differences has not been produced in research thus far considered. But, the more rigorous theoretical underpinnings, the statistical methodology, and the availability of research that has concentrated on youth unemployment duration, more than make up for the disadvantage of small numbers of studies.

In the Introductory Chapter, we saw that the high unemployment rate for youth, relative to prime age labor force members, stemmed from greater search frequency for youth rather than greater duration per search.

Within the youth category, however, racial differences in both search duration and frequency might account for racial unemployment rate differences.

No clear agreement has emerged in the literature on whether search duration differs by race. Holt and Smith used monthly Current Population Survey data from 1955 through 1970 and found no racial difference in average search duration.[15] The Ohio State Longitudinal Survey, using annual 1966 & 1968 data on male youth 14 to 24 years, found that black youth averaged longer periods of search between jobs.[16] Perhaps the discrepancy between the studies is due partly to the age category differences and thus possibly differences in participation rates. But the important point is that neither study gives underlying reasons for observed search behavior. Holt and Smith use regression analysis, but are limited by their data base from considering the influence of variables such as age, sex, education, geographic region, occupational and industrial category. The second study does consider some demographic characteristics, but uses only a tabular presentation of the data and draws no statistical inferences.

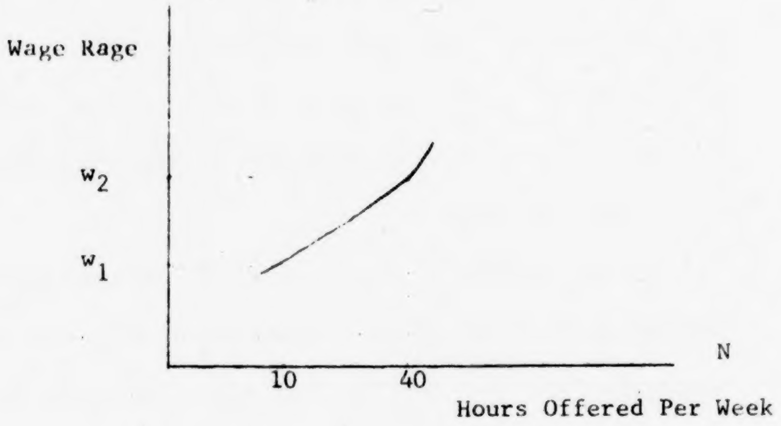
In the remainder of our empirical review, we consider data on factors which might affect unemployment duration, especially while concentrating on those factors that might cause search duration differences between young black and young white men. Such factors include: wage aspiration level, age, education, search frequency, and occupational information.

Unemployment Duration and Wage Aspiration Level*

This section draws freely on a paper by Charles C. Holt, with whose writings the declining acceptance-wage hypothesis is most closely associated.[17]

The classical labor supply model is a schedule relating hours of work offered by an individual to a series of wage rates. Of course, other things may bear on the work decision, such as asset position, marital status, age, sex, and family background. What we are suggesting is that an additional institutional factor may undermine the implications of the classical labor supply model.

Figure 2.1 Labor Supply Schedule



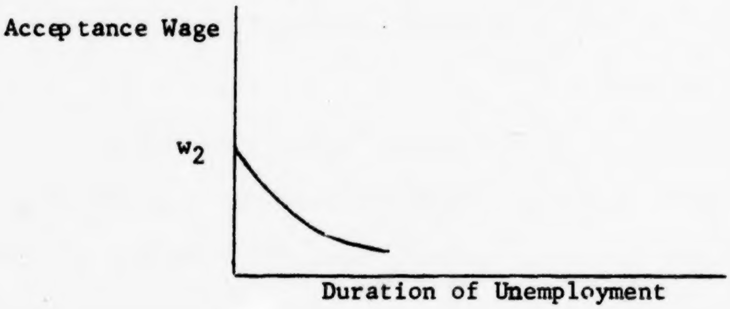
---

*In this chapter the terms wage aspiration level wage acceptance level, asking wage, and reservation wage are used to refer to the same concept. Some confusion, however, from this practice is found in job search literature, and the first part of Chapter III attempts a reconciliation.

Specifically, a person seeking a full-time 40 hour per week job, is more likely to be offered a wage on a take-it-or-leave-it basis than to be offered a wage and then counter-offer. Moreover, it is doubtful that such a person would insist on remaining unemployed if unable to find a wage paying at least w_2, until his savings and unemployment compensation were exhausted. What is more plausible is that the individual's labor supply schedule at 40 hours would steadily shift to the right the longer the person is unemployed.

Graphically, the declining acceptance-wage hypothesis is shown in Figure 2.2. The longer a person searches unsuccessfully for a job, the greater his willingness to make downward adjustments in his acceptance, or reservation wage. Kasper theorized that, as a work-leisure decision, the longer the person remains without work, the lower the marginal utility he derives from leisure, and the more the reservation wage he is willing to accept also declines.

Figure 2.2 Declining Acceptance Wage Hypothesis



Once the notion of a declining wage is accepted, it appears reasonable that for unemployed workers the rate of decline of the acceptance wage would affect the length of unemployment. Unrealistic or excessively high acceptance wages would prolong the duration of unemployment.

Hirschel Kasper used 1961 data on 3,000 long-term unemployed registrants with the Minnesota State Employment Offices, with the period of unemployment ranging from 0 to 20 months.[19] In a questionnaire, Kasper asked, "What wage are you seeking?" Kasper then regressed the client's asking wage, relative to their last wage, on the duration of unemployment. He found, on the average, that the asking price of unemployed workers declined at 0.38 percent per month. Five months after the initial interview, Kasper re-examined the sample, and discovered that about 800 persons had found work. Separate regressions revealed that the wage aspiration rate decline was 0.76 percent per month for the 800 successful job-finders vs. 0.32 percent per month for those still unemployed. Thus, concluded Kasper, wage aspirations do fall over the time unemployed and the faster the relative wage aspiration declines, the shorter the duration of unemployment.

In a similar study, Sobel, Folk, and Wilcock also confirmed the declining acceptance-wage hypothesis in a six-state sample of 3,500 older, unskilled, blue-collar workers.[20] However, they found unemployed workers far more willing to make non-wage adjustments* than to accept lower pay.

From the Kasper and Sobel studies, we may infer that setting the initial acceptance wage affects unemployment duration, and is likely to be related to the same type of economic and familial factors that affect labor market participation and wage determination. For example, we might list local and national labor demand, personal asset position, age, marital status, sex, and training as likely to affect the initial acceptance wage.

---

*i.e., accept a less desirable occupation or irregular hours, as duration of unemployment increased.

Attitude toward risk is a variable not usually considered in empirical labor market analyses, but one that appears relevant to labor market behavior.

In a recent study, the effect of risk-taking on bargaining behavior was examined.[21] The authors measured risk-taking propensity using a Kogan-Wallack test in which the subject was presented with twelve hypothetical choice dilemmas, and then asked to indicate the lowest probability of success he would tolerate. In addition, to the risk-taking score, the 78 subjects were scored on their relative success in a business bargaining game. Success referred to profits in a hypothetical bilateral monoply situation. Regression analysis revealed that risk-taking propensity did affect the initial asking-price level, as well as the willingness of the individuals to depart from this level. The greater the risk-taking propensity, the higher the initial asking price and the smaller the reduction in asking price over time. For our purposes, the clear implication for job search behavior is that risk attitude may affect the initial asking wage and its rate of decline over time; hence, risk attitude differences for youth may explain differences in youth unemployment duration.

Youth and Wage Aspirations

Unfortunately, in the case of young workers, especially black workers, the evidence concerning wage aspirations and unemployment duration is mixed. The Ohio State University National Longitudinal Survey, for instance, finds that young men, especially black young men, have occupational aspirations somewhat unwarranted by their backgrounds, although some downward adjustments do occur.[22] Inconsistent with this finding, however, is a Bureau of Labor Statistics finding in a special October 1969 national survey of young people 16 to 21 years. This report shows young persons to be well-informed about the going hourly rates of pay for the kinds of jobs open to them.[23] Wage expectations of the unemployed were not out of line with wages of employed workers and very few wage offers were rejected as too low.[24]

Part of the discrepancy between the Longitudinal Survey and the finding of the Bureau of Labor Statistics can be reconciled by the fact that different concepts are measured in each. The former survey asks young men aged 14 what occupation they would like to have at age 30 and concludes the answers are out of line with national data on occupational distribution when color and expected education are considered. The Perella Survey compared the reservation wage of young men unemployed and searching with the actual wage of similar working young men. A more direct companion of the findings, however, sustains the suggestion made above that the survey results differed. In _Years for Decision_*, the Ohio State survey finds both white and black women aged 14 to 24 years who are unemployed and searching have wage requirements that seem overinflated in comparison with their past wages and the wages of employed counterparts. Perella, however, finds women aged 16 to 21 who are unemployed and searching to have acceptance wages that are _below_ the wage rates of their unemployed counterparts. Clearly additional research is needed in examining what factors affect the determination of the unemployed individual's acceptance wage and, particularly, if excessive wage demands affect the average duration of a young person's unemployment.

Factors Affecting Youth Unemployment Repetition and Duration

With respect to young worker unemployment duration we need to distinguish repetition, or number of incidents of unemployment per year, from the length of time per incident. Out of several factors which the

---

*John R. Shea, Roger D. Roderick, Frederick A. Zeller, Andrew I. Kohen, _Years for Decision_, _A Longitudinal Study of the Educational and Labor Market Experience of Young Women_, Center for Human Resource Research, Ohio State University, Vol. 1, February, 1971, p. 58.

Ohio State survey revealed as influencing the repetition of unemployment, we have elected to consider age, race, and education. Young men aged 19 and 20 were more likely than men aged 21 and 22 to have had one or more incidents of unemployment between 1966 and 1968, a result which held for both white and black young men. However, overall, black workers aged 19 to 22 were about 60% more likely to have had one or more occasions of unemployment than were their white counterparts. Finally, as expected, the incidence and repetition of unemployment declined with the increase in years of education.

The number of occasions of unemployment and its underlying causes are important for this job search study because of the effect of the negative association between repetition and duration of unemployment.[25] For a young man, the more incidents of unemployment, the less the length of time per incident. This was especially true for blacks; average duration declined from 10.4 weeks for youth with a single occasion to 5.4 weeks for those with four or more spells of unemployment.

Factors affecting the duration of unemployment include age, race, education, and occupational information.

Although young workers have periods of shorter unemployment duration than adults, within the youth category, and because of the negative association between age and number of spells, search time is greater the younger the worker. For example, the Longitudinal Survey found that black men aged 19 and 20 years averaged nearly 14 weeks per unemployment incident vs. 6.5 weeks for those 21 to 23.[26]

Empirical findings as to the effect of education on the duration of unemployment are contradictory. The Longitudinal Survey found a monotonic negative relationship between years of schooling and average search length.[27] The suggested explanation rested on productivity grounds; that is, less educated workers were more readily laid off and less readily hired. Stevens indicated the education effect to be not so clearly related to search length.[28] He suggested that the education effect depended on the economic conditions of the area and the relative wage adjustment speed of the individual.

The effect of occupational information on search length has been discussed at length in several studies. Stevens, in two studies, investigated the differential impact of extra or supplemental labor information on search duration. Stevens' method consisted of presenting to an experimental group of unemployed job seekers a list of eight firms known to have hired workers with an individual's particular skills during the past four years. As expected, individuals receiving such supplemental information had substantially lower search lengths. For the Ohio State National Longitudinal Survey, extent of occupational information was measured as an individual's test score on a short quiz as to wages and duties of various occupations.[29] Again, results supported the hypothesis that increased labor market information shortened the length of job search.

Dimensions of Labor Market Information

Four dimensions of labor market information emerge from the literature. One rather obvious dimension concerned the rapid decay of job information over time.[30] Knowledge about today's job openings may not be very valuable in a month or even in a week or less for many unskilled positions. Also, Albert Rees distinguished between two or more dimensions: extensive and intensive labor market information.[31] For the job seeker, extensiveness referred to the quantity of job openings covered by the information. Intensiveness referred to the characteristics of a job such as working conditions, fringe benefits, and opportunities for advancement. Rees found blue-collar workers were more likely to find jobs by informal methods than were white-collar workers.

Informal methods, such as contact with an employed friend in a plant, probably yielded more intensive information about the job.[32] Formal methods, however, might have been the best way to acquire extensive information. Hence, for a black man, with transportation difficulties and unemployed friends, it might have been more efficient to use formal search methods. The problem with generalizing as to efficiency comes when one considers another dimension of labor market information, its acquisition or search costs.

The cost of information, or costs of looking for a job, may be psychic or monetary. If monetary, the costs are divided into direct and indirect costs. Psychic costs may involve fear-of-failure or downward adjustments in occupational aspirations. Direct costs refer to costs of transportation, newspapers, fees to private placement agencies, or other costs, such as food or rent. The choice as to what constitutes other costs follows time and function lines. For example, a man seeking a white-collar job might buy a new suit of clothes so as to make a better appearance in job interviews. Similarly, a man having found a shoe-selling job might purchase a new suit in keeping with company policy. In the first case, part of the cost of the new suit is an investment item for job search purposes; in the second, it is not a real search cost. Such types of search costs, however, are likely to be small relative to the indirect costs of search.

Theoretical job search analyses consider the cost of time to be the single most important search cost to most workers actively seeking work.[33] If the man is either employed or is unemployed voluntarily, then his time is worth at least the mean wage of the area, if not his full rate. The sacrifice, or indirect cost, is the foregone opportunity to work rather than spend the time searching for a job.

For unemployed individuals not voluntarily unemployed, the indirect costs of search are negligible. In fact, the unemployed person may even have to sacrifice money if he takes a job; unemployment compensation, the value of leisure, and welfare payments all represent returns lost if the job seeker begins a job.

Empirical research concerning the total cost of job search by occupation, race, age, education, and reason for termination of last job has been virtually nil. What we have is a series of normative theoretical studies whose primary purpose has been to derive an optimal acceptance wage or an optimal duration of search, relating a very elementary search cost function to a much more complex search benefit function.

Review of Job Search Theory

For economists, the literature on the economics of job search and information began, for all practical purposes, with a pair of articles by George Stigler,[34] notwithstanding the earlier work of Marschak,[35] and others. Stigler brought marginal analysis to bear on job search behavior and defined net search benefits, or net wealth from investment in search, as a discounted flow of earnings at the newly found wage. Alchian's article was an extension of the Stigler model and stressed differences in search costs as contributing to unemployment differences.[36] Both Stigler and Alchian envisioned search as sequential sampling from a given distribution of acceptable offers. Since in their theory, offers did not decay over time, the problem was when to stop the process of collecting, or to derive a search length that maximized wealth. Retaining the sequential sampling assumption, McCall[37] and Mortenson[38] added a slight twist to Stigler's wealth rule: because a job seeker first sets a target, or optimal acceptance wage, search duration was defined as time required to find a job with a wage at least as high as the target. Other writers, for example, Simon[39] and Gronau[40], included additional dimensions, such as regular adjustments in the reservation wage per time period of search.

In this study, we are concerned with the contribution of job search differences to differences in wage and unemployment rates. The main contention is that acceptance wage, cost of search, duration of search, and expected work duration are all related and simultaneously determined as a person undergoes job search. Strong contention for the interrelationship of these variables is found in virtually all the theoretical articles. In the next chapter, a simultaneous-equation model of job search is presented. At present, we offer two theoretical examples of how job search may lead to differences in unemployment and wage rates. In the first example, we derive a proposition relating the acceptance wage and the duration of search.

Theoretical Proposition on Wage Aspirations and Unemployment Duration

In the first example, assume a man is seeking a job matching his qualifications within a local labor market. He has an idea as to what his skills are worth, based on past jobs, what others like him are currently paid, and his knowledge of current economic conditions. This idea of his worth, which economists call reservation wage, may fall as the duration of unemployment increases, as search proceeds from more promising to less attractive areas of search, and the cost of search in financial and psychic terms increases. For the moment, however, we assume the reservation wage constant over the duration of search. That is, we disregard the role of search costs, broadly defined.

The process of job search may be compared to that of sampling from a given distribution of wage offers. Thus, a behavioral rule for our searcher, assuming he draws one offer per time unit from the distribution of job offers, would be to sample until he obtains an offer at least as great as his reservation wage. When he finds an offer above his reservation wage, search ceases and he begins work. In this case, the duration of search is simply the number of time periods which elapse in a sequence of trials before the first acceptable wage is found. These time periods are variates from a geometric probability distribution.

Formally, assume the probability of finding an acceptable job in a single trial is p where $0 \leq p \leq 1$ and p is constant for a sequence of trials. Thus, the probability of no acceptable job in one trial is $q = 1-p$, and the probability density function for the number of unemployed periods, x, before finding an acceptable wage is,

$$(1)\quad f(x) = pq^{x} \qquad x=0,1,2,\ldots$$

In this case the expected length of unemployment is

$$(2)\quad E\,[x] = \frac{q}{p}$$

In equation (2), note the reciprocal relationship between the expected duration of search and the probability of finding an acceptable wage is a single offer, p. Since the latter is increased by lowering the reservation wage, we may state the following proposition:

Proposition: For a given distribution of job offers, ceteris paribus, the lower the individual's reservation wage, the shorter the expected search time, and vice versa.

This example is indicative of the type of analysis found in McCall.[41]

Mortenson makes the same point as follows.[42] If we allow f(y) as the continuous density function of all offers in the interval a to b and

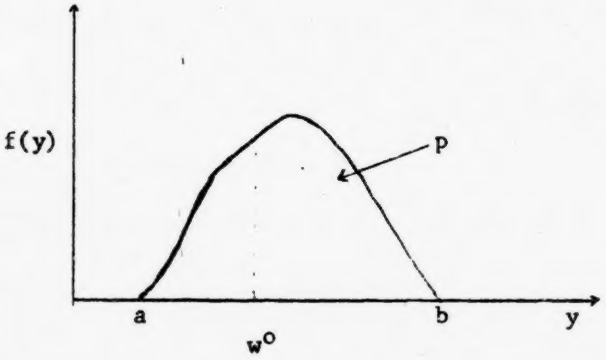
w^o as the individual's reservation wage,

(3) $p = \int_{w^o}^{b} f(y)dy$ = probability of finding an acceptable offer in one trial

and

(4) $\frac{1}{p}$ = the number of periods of search before finding an acceptable offer.

Figure 2.2 Distribution of Wage Offers



In this case, the expected duration of search is longer the higher the acceptance wage, which is again Proposition I.

(5) $\frac{dp}{dw^o} < 0$

We could have added discounting of future income at the wage accepted, or search costs, or made the acceptance wage flexible, or even made the duration of the next job uncertain. These factors are important in developing a more realistic or general search model and some are included in the search model presented in the next chapter; but, factors such as race, age, education, occupational information, and the number of incidents of unemployment also influence the duration of search. Blending these two sets of variables to explain youth job search is a main theme of this study.

Theoretical Proposition on Wage Gains from Search

The second example of a theoretical approach to job search behavior is suggested by George Stigler and shows the gain from search to be greater the greater the variance of the distribution of wage offers.[43]

There are two tiers or levels to the sampling problem. First, assume the searcher faces a distribution of wage offers such that the same probability is attached to each offer. Specifically, assume wage offer W is a continuous random variable with uniform probability density over the interval 0 to 1. Thus we may define the probability density function for W for w_i wage offers in a given sample of wage offers as:

$$(6)\quad f(w) = \frac{1}{1-0} = 1 \quad \text{for } 0 \leq w \leq 1$$
$$= 0 \quad \text{elsewhere}$$

The cumulative distribution of W, or F(w), is given by

$$(7)\quad F(w) = \begin{cases} 0 & \text{for } w < 1 \\ \frac{w-0}{1-0} = w & \text{for } 0 \leq w \leq 1 \\ 1 & \text{for } w > 1 \end{cases}$$

Secondly, assume the individual searches until he collects several offers, or that he draws a sample and, in a single sample elects the highest offer, W*. This represents the second tier of the search process and it is the distribution of these maximum offers, w* over repeated samples that is of chief concern. We define a single W* as follows:

$$(8)\quad W^* = \max \left[w_1, w_2, w_3, \ldots w_i, \ldots w_n \right]$$

Furthermore, assume that offers once given do not decay and that several trials are repeated. Each time a sample of offers is drawn, the highest offer is recorded. In this fashion, a cumulative frequency function of maximum job offers is derived. This function denoted as

$$(9)\quad G(w) = \text{cumulative frequency function of } w^*,$$

can be thought of as the probability that a maximum wage offer, W^*, is less than or equal to a given wage offer, w^o, where w^o is any wage offer in the interval 0 to 1.

Thus,

$$(10)\quad G(w) = p\,[\bar{W} \leq w^o]$$

Substituting equation (10) into equation (8) we find

$$(11)\quad G(w) = P\,[\max(w_1, w_2, \ldots w_n) \leq w^o]$$

Of course, to say that the greatest of the wage offers falls below w^o implies that all offers fall below w^o. In addition, if we assume the independence of successive trials, then

$$(12)\quad G(w) = P\,[\bar{w}_1 \leq w^o] \times P\,[\bar{w}_2 \leq w^o] \times \ldots \times P\,[\bar{w}_n \leq w^o]$$

For the ith offer, the probability of falling below an arbitrary w is

$$(13)\quad P[\bar{w}_i \leq w^o] = G(w)$$

For the interval 0 to 1, this probability equals

$$(14)\quad P[\bar{w}_i \leq w^o] = \left(\frac{1}{1-0}\right) \times \text{length of the interval}$$

or

$$= w^o$$

Thus, we may restate equation (9) as

$$(15)\quad G(w) = w^o \;.\; w^o \;.\; w^o \ldots w^o$$

$$= \begin{cases} 0 \text{ for } w < 0 \\ w^n \text{ for } 0 \leq w \leq 1 \\ 1 \text{ for } w > 1 \end{cases}$$

Equation (15) is the cumulative distribution function of maximum wage offers obtained in repeated trials. From equation (15), we define the probability density function of maximum offers as

$$(16)\quad \frac{d\,G(w)}{dn} = g(w) = \begin{cases} nw^{n-1} & \text{for } 0 < w < 1 \\ 0 & \text{elsewhere} \end{cases}$$

The expected maximum wage rate is thus defined as

$$(17)\quad E[\bar{w}] = \int_0^1 wnw^{n-1}\,dw = \frac{n}{n+1}$$

and the variance

$$(18)\quad \mathrm{Var}\,(w) = \frac{n}{(n+1)^2\,(n+2)}$$

From equation (17) we know the average maximum wage obtained in n searches is $\frac{n}{n+1}$. Thus, it is obvious that the expected marginal wage rate gain from n+1 searches is

$$(19)\quad \frac{n+1}{n+2} - \frac{n}{(n+1)} = \frac{1}{(n+1)\,(n+2)} = \frac{\mathrm{Var}\,(w)}{E\,[\bar{w}]}$$

Notice the close relationship between the right hand side of equation (19) and the variance of the distribution of maximum offers, equation (18). This relationship enables us to infer a second proposition.

Proposition II: The greater the mean of the distribution of wage rates _and_ the greater the variance of the distribution of wage rates, _ceteris paribus_, the greater the marginal gain from another time unit of job search.*

As with our first proposition, we need to draw attention to certain qualifications. First, reconsideration of equation (19) shows that the expected marginal gain from search falls off rather sharply with increased search duration. Secondly, we have abstracted from cost considerations. Both points suggest that Proposition II may hold only for relatively short periods of job search. Furthermore, the objections are the result of failure of the model to explicitly consider the simultaneity of job search decisions. Nonetheless, with the second proposition, we have another important reason for search behavior and wage rates varying by occupational category, age, race, skill, and other factors mentioned earlier in this chapter.

---

*Both the mean and variance increase as n increases.

Recent research shows that variance in wage rates differs by occupational category.[44] Proposition II, that gains from search were related to the variance of wages, makes one believe differences in search behavior should be expected. Yet, the real issue is whether search differences cause differences in wages and unemployment when one explicitly considers the other factors involved.

FOOTNOTES CHAPTER II

1. Axel Leijonhufud, *On Keynesian Economics and the Economics of Keynes*, (Oxford University Press, 1968), also by same author see"Keynes and Keynesians: A suggested Interpretation," *American Economic Review*, Vol. 57, No. 2, pp. 401-410.

2. Alice H. Kidder, "Interracial Comparisons of Labor Market Behavior," unpublished Ph.D. dissertation, Massachusetts Institute of Technology, August, 1967.

3. Melvin Lurie and Elton Rayack, "Racial Differences in Migration and Job Search: A Case Study," *Southern Economic Journal*, Vol. 33, July, 1966, pp. 81-95.

4. George J. Stigler, "Information in the Labor Market," *Journal of Political Economy*, Vol. 70, No. 5, Part 2, October, 1962, pp. 94-105.

5. Herbert S. Parnes, *Research on Labor Mobility: An Appraisal of Research Findings in the United States*, Social Science Research Council (New York: Social Science Council, Bulletin 65, 1954).

6. Lawrence C. Hunter and Graham L. Reid, *Urban Worker Mobility*, (Paris: Organization for Economic Co-Operation and Development) Labor Mobility, No. 5, 1968, pp. 115-116.

7. Herbert S. Parnes, "Labor Force Participation and Labor Mobility," in *A Review of Industrial Relations Research*,(Madison, Wisconsin: The Industrial Relations Research Association, 1970),pp. 54-55. Parnes, in turn lets several authors in this article.

8. *Op. cit*, Kidder.

9. Joseph C. Ullman and David P. Taylor, "The Information System in Changing Labor Markets," *Proceeds of the 18th Annual Industrial Relations Research Association Meetings, 1965*, (Madison, Wisconsin: 1966), pp. 276-289.

10. *Ibid*.

11. *Op. cit*. Lurie-Rayack.

12. Larry D. Singell, "Some Private and Social Aspects of the Labor Mobility of Young Workers," *Quarterly Review of Economics and Business*, Spring 1966, pp. 19-28.

13. Harold L. Sheppard and A. Harvey Belitsky, *The Job Hunt*, (Baltimore: The John Hopkins University Press, 1966).

14. Ibid., pp. 122-124

FOOTNOTES CHAPTER II (Continued)

15. Ralph E. Smith and Charles C. Holt, "A Job-Search Turnover Analysis of Black-White Unemployment Ratio," A Working Paper (Washington, D.C.: The Urban Institute, 1971)

16. Andrew I. Kohen and Herbert S. Parnes, Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth, Volume III, June, 1971 (Columbus, Ohio: The Center for Human Resource Research) Table 3.9, p. 64.

17. For example, see Charles C. Holt and Martin H. David, "The Concept of Job Vacancies in a Dynamic Theory of the Labor Market," in The Measurement and Interpretation of Job Vacancies, New York, National Bureau of Economic Research, 1966, pp. 73-110. Also see Charles C. Holt, "How Can the Phillips Curve Be Moved to Reduce Both Inflation and Unemployment," and "Job Search, Phillips' Wage Relation, and Union Influence; Theory and Evidence," both in Microeconomic Foundations of Employment and Inflation Theory (New York: W.W. Norton, 1970), pp. 224-251 and pp. 27-52, respectively.

18. Hirschel Kasper, "The Asking Price of Labor and the Duration of Unemployment," Review of Economics and Statistics, Volume 49, May 1967, pp. 165-172.

19. Ibid.

20. Irvin Sobel and Richard C. Wilcock, "Job Placement Services for Older Workers in the United States," International Labor Review, Vol. 88, August, 1966, pp.129-156.

21. Donald L. Harnett, Larry L. Cummings, and G. David Hughes, "The Influence of Risk-Taking Propensity on Bargaining Behavior," Behavioral Science, Vol. 13, No. 2, March 1968.

22. Parnes and others, op. cit., Career Thresholds, Vol. I, 1970, pp. 164-172, and Vol. II, 1971, p. 64.

23. Vera C. Perella, "Young Workers and Their Earnings," October 1969 (Washington: Department of Labor, Bureau of Labor Statistics, July 1971)

24. Ibid.

25. Op. cit., Parnes and Kohen, p. 61

26. Ibid., Table 3.9 p. 64.

27. Ibid., p. 65.

28. David W. Stevens, "Duration of Unemployment: Theory and Evidence," paper presented at the 1971 Western Economic Association Meetings, Vancouver, British Columbis, August 1971.

FOOTNOTES CHAPTER II (Continued)

29. Op. cit., Parnes and others, Vol. I.

30. David W. Stevens and Joseph C. Ullman, "Inadequate Labor Market Information as a Source of Disadvantages," undated and unpublished manuscript, p. 4.

31. Albert Rees, "Information Networks and Labor Markets," American Economic Review, Vol. LVI, Mary 1966, pp. 559-566.

32. Ibid.

33. Op. cit., Stigler, p.101.

34. Ibid., plus George Stigler, "The Economics of Information," The Journal of Political Economy, Vol. LXIX, No. 3, June 1961, pp. 213-225.

35. See Jacob Marshak, "Economics of Information Systems," Journal of the American Statistical Association, Vol. 66, No. 333, March 1971, pp. 192-219 and the fifty-six references listed there.

36. Armen A. Alchian, "Information Costs, Pricing and Resource Unemployment," Op. cit., Edmund S. Phelps, et.al, Microeconomic Foundations of Employment and Inflation Theory (New York: W. W. Norton, 1970), pp. 27-52.

37. J.J. McCall, "Economics of Information and Job Search," The Quarterly Journal of Economics, Vol. LXXXIV, No. 1, February 1970, pp. 113-126.

38. Dale T. Mortensen, "Job Search, the Duration of Unemployment, and the Phillips Curve", American Economic Review, Vol. LX, No. 5, December 1970, 847-861.

39. Herbert A. Simon, Models of Man (New York: Wiley 1958) pp. 257-260.

40. Reuben Gronau, "Information and Frictional Unemployment," American Economic Review, June 1971, pp. 190-301.

41. Op.cit., McCall.

42. Op.cit., Mortensen.

43. Op.cit., Stigler, "The Economics of Information."

44. For example, see Albert Rees and George P. Shultz, Workers and Wages in an Urban Labor Market, (Chicago: The University of Chicago Press, 1970) Table 5.1, pp. 60-61.

CHAPTER III

RISK ATTITUDE, RESERVATION WAGE, AND A GENERAL JOB SEARCH MODEL

In Chapter II we indicated that a number of economic and demographic factors had been related to job search behavior in previous empirical and theoretical research. In this chapter, we attempt to incorporate these factors into a general econometric model explaining job search behavior. Before presenting the general model, however, we need to clarify two points. The first issue concerns the risk attitude of the individual seeking a job. It will be shown that, under certain conditions, attitude toward risk affects job search behavior. Secondly, we distinguish among wage aspiration, reservation wage, and the mathematically expected wage, since in Chapter II a number of terms were used interchangeably by other researchers to refer to a person's reservation wage. Finally, in the last part of this chapter, we present the econometric model of youth job search behavior.

Risk Attitude and Job Search Behavior

The theoretical neoclassical literature of labor supply presupposes a competitive Walrasian world in which wage rates may vary due to training or skill, or degree of unpleasantness of job, but never due to lack of information concerning wages and job conditions in alternative jobs. In this literature the assumption is made that wage-rate information is instantly disseminated and offered free of charge to all concerned. Empirical evidence shows otherwise; all wage rates are not known and time spent searching may be costly in foregone income or "brokerage" fees paid to private placement agencies.

In this section, the implications of wage uncertainty for utility-maximizing behavior are developed in Marshallian and vonNeumann-Morgenstern contexts.

It will be seen that the diminishing marginal utility assumed by Marshall interacts with the individual's attitude regarding risk performance.

We assume that the individual maximizes Marshallian utility. That is, we assume the individual has a consistent and twice-differentiable set of preferences between work or income and leisure. This relationship is defined according to the utility function of equation (20).

(20) $U_M = U_M(I,H)$ where: I = money income
H = hours of work
and M refers to Marshall

Money income is further defined as the product of hours worked and y, the rate paid per hour, or

(21) $I = H \cdot y$

A basic premise is that y is a random variable to the individual and is distributed in some interval a to b according to density function f(y). Specifically,

(22) $f(y) \geq 0 \quad \text{for } a \leq y \leq b$

and $\int_a^b f(y)dy = 1$

The limits a and b are set by local area labor market conditions and the productivity of the worker. They could be defined, respectively, as the lowest and highest wage an individual might discover in a local labor market for similar work. For simplicity, we assume wage a coincides with the individual's lowest acceptance wage. Within these boundaries, the main reason for the variation in y is due to ignorance on the part of both sellers and purchasers of labor as to what constitutes the exact wage, offered and accepted, of every other participant in the local labor market.

We now assume that we are dealing with a man who is unemployed and seeking full-time work. His problem is to select that work-leisure combination yielding the greatest Marshallian utility. Traditionally, labor supply theorists have realized wage rate dispersion but have argued in terms of the mean, or mathematically expected wage rate.[1] The choice-dilemma is thus reduced to selecting the proper combination of hours of work at the mean wage rate. The contrast between this so-called traditional approach and the approach presented here depends on two factors: first, on whether the individual job searcher adjusts his behavior to the mean wage or allows for explicit consideration of wage variation: secondly, on the interactions between the Marshallian and von Neumann-Morgenstern utility functions of the individual.

Earlier we assumed that our representative individual is seeking a full time job. Implied is the likelihood that this decision has restricted his hour-setting freedom to H^o, or a forty-hour week. This implication together with equation (22) enables us to rewrite equation (21) as

$$(23) \quad I = g(I) = g[\bar{H}^o, y] = H^o . y$$

and

$$E[\bar{I}] = \int_a^b H^o . y \, g(y) dy = H^o E[\bar{y}]$$

That is, income is the product of a constant and a random variable, and thus income itself is a random variable with expectation $\bar{I} = H^o . y$.

Having restricted work (and leisure) to a certain number of hours, the individual can alter utility only by changes in his wage rate, and hence, changes in his income. The individual may change in his wage via job search and the discovery of previously unknown offers. The issue is whether or not the individual maximizes his Marshallian utility by accepting what he believes to be the mean wage for his skill level and local labor market.

Following Marshall, we rewrite equation (20) as

$$(24) \quad U_M = U_M\,(I, H^o) \quad , \quad \frac{dU_M}{dI} > 0$$

$$\frac{d^2 U_M}{d^2 I} < 0$$

That is, we assume that income has a positive but diminishing marginal utility, which implies that equation (24) is a concave function between utility and income. If a function $U_M\,(I)$ is defined in the interval (a,b) and is a continuous concave function in this interval, and if g(I) is a nonnegative continuous function such that $\int_a^b g(I)dI = 1$, then by Jensen's inequality

$$(25) \quad U\underline{/}\overline{E}(I)\underline{\ 7} \geq E\underline{/}\overline{U}(I)\underline{\ 7}$$

Equation (25) indicates that an individual seeking a job will prefer the mean wage to the alternative which involves taking a chance on finding any other wage. The preference for $E\underline{/}\overline{U}\ (I)\underline{\ 7}$ is not based on risk attitude as the individual, we assume, is risk-neutral. By definition, a risk-neutral person is one who is indifferent between receiving a guaranteed reward and playing a fair game of chance where the expected reward of the game equals the guaranteed reward.[3] Below, the analysis is extended to include individuals who are risk-evaders, those requiring an extra expected reward before playing a game, and risk-takers, those willing to gamble even where the expected reward falls below the guaranteed reward.

Graphically, the argument for the risk-neutral case is shown in Figure 3.1. Given the Marshallian assumption regarding diminshing marginal utility with respect to income, the individual will prefer certainity income I_3 rather than take a chance on I_1 or I_2. This is because of the associated utility, $U_1 = U[E(I)] > U_o = E[U(I)]$. In fact, $[I_4 - I_3]$ is the income which the individual would be willing to forego in order to avoid uncertainty.

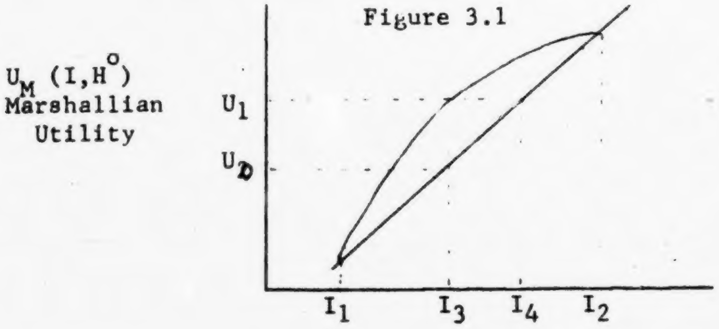


Figure 3.1

In order to generalize the analysis, we need to drop the assumed risk neutrality of the job seeker. If we transform the individual's utility function into a von Neumann-Morgenstern utility index, it will be seen that the preference for certainty is not universal; these individuals who are risk-takers might prefer uncertainty. We transform equation (24) into a von Neumann-Morgenstern utility index as follows:

$$(26) \quad V(U)^{*} = V(U[I,H^o])$$

Equation (26) represents a one-to-one correspondence between Marshallian and von Neumann-Morgenstern utility indexes.

If we assume that the job searcher wishes to maximize his expected utility in both the Marshallian and von Neumann-Morgenstern sense, how does V(U) vary as money income changes? First,

$$(27)\quad \frac{dV}{dI} = \frac{dV}{dU} \cdot \frac{dU}{dI} \qquad \text{if we supress } H^o$$

and

$$(28)\quad \frac{d^2V}{dI^2} = \frac{d^2V}{dU^2}\left[\frac{dU}{DI}\right]^2 + \frac{d^2U}{dI^2}\,\frac{dV}{dU} \quad \text{Where } \frac{dV}{dI} > 0,\ \left[\frac{dU}{dI}\right]^2 > 0$$

and, following Marshall, $\frac{d^2U}{dI^2} < 0$

The effect of money income on the von Neumann-Morgenstern index depends on the risk attitude of the individual. If the person prefers to avoid risk, then

$$(29)\quad \frac{d^2V}{dU^2} < 0 \Rightarrow \frac{d^2V}{dI^2} < 0$$

For risk-neutral individuals,

$$(30)\quad \frac{d^2V}{dU^2} = 0 \Rightarrow \frac{d^2V}{dI^2} < 0$$

In both cases, the individual prefers wage certainty, and will even sacrifice income to avoid uncertainty. However, in the case of risk takers,

$$(31)\quad \frac{d^2V}{dU^2} > 0 \quad \text{and } \frac{d^2V}{dI^2} \gtreqless 0$$

$$\text{as } \frac{d^2Y}{dU^2} \cdot \frac{dU}{dI} = \frac{d^2U}{dI} \cdot \frac{dV}{dU}$$

We have just demonstrated that in two of three cases individuals prefer wage certainty to prolonged and risky job search for alternative offers. The reason depends on the fall in Marshallian utility with respect to income increments. For an individual who is a risk-taker, however, income uncertainty might be preferred. As equation (31) implies, a risk-taker case might arise at low income levels, such as for youth, where risk attitude might outweigh the negative Marshallian influence.

In this study, a proxy score for youth risk attitude is developed and related to youth job search. The measure is discussed below and is a proxy for the exact game-reward definition given above. In addition, the derivation of the preference for wage certainty was made on the assumption that the individual has no predictive ability regarding wage rates. In this study, also a maintained hypothesis is that race differences in the cost and quality of labor market information do cause differences in wage rate prediction and job duration.

Wage Aspirations, Acceptance Wage, and Wage Expectations

In previous literature on job search behavior, economists have not, on the whole, carefully distinguished between a reservation wage, asking price of labor[4], asking wage[5], acceptance wage[6], wage aspiration level[7], and expected wage[8,9]. In this section, we draw distinction among these concepts.

First of all, the term "expected wage" has a specific definition in mathematical sampling theory[10]. If wage rates are denoted by a continuous random variable y where y has the frequency function f(y), then the expected value $E[y]$ is defined as:

$$(32) \quad E[\bar{y}] = \int_{-\infty}^{\infty} y f(y)\,dy = \bar{y}$$

Thus, the expected value is the mean wage rate.

As per the other terms, Gronau and Kasper use the terms "asking wage" and "asking price of labor," respectively, to refer to what Marshall called the "supply price."[11] The supply wage is the lowest wage rate the worker would accept to perform a particular task requiring a given amount of labor.

The terms reservation wage and acceptance wage also fit this definition. Kasper, however, did not ask the question, "What is the lowest wage you would accept?" Rather, his study of unemployed workers defined the asking wage as the answer to the question: "What wage are you currently seeking?"[12] The danger herein is that the answer given to Kasper was on the order of, "What wage would you like?" not, "What is your present lowest acceptable wage?" These are related but different concepts.

In his earlier writing, Charles C. Holt used the terms aspired wage and acceptance wage interchangeably[13]. In a recent paper, however, Holt distinguished between the two concepts[14]. He suggests that job aspirations have many dimensions of which aspired wage is only one. The aspired wage of a job is a function of his last wage rate, and his general labor market knowledge and this aspired wage declines over time as the worker exhausts the better leads, and as the total cost of search rises with time. As search continues, offers are received and either rejected or accepted. Yet, says Holt, the worker's acceptance wage is above the aspired wage. We believe that Holt is basically correct in distinguishing between the two concepts; however, he is confused regarding his word choice and ranking of the terms. Any wage above the worker's reservation wage is "acceptable," but that is not the point. The acceptance wage is the Marshallian supply wage and this is less than or equal to the aspired wage of the searcher.

An aspiration is a goal or hope that is more or less desired by the individual regarding a future performance. The term is distinguished in the social psychology literature from expectations (non-mathematical sense), or realistic aspirations toward a particular goal[15]. In contrast to Holt, other studies indicate that aspirations exceed expectations, where the latter is not defined in the mathematical sense.

For example, a recent survey of 642 young workers aged 17 to 27 asked, "What job would you like to have in five years?" Jobs were ranked by a prestige index and the results indicated that, whereas over fifty percent of the sample desired or aspired to a more prestigious job, less than five percent actually believed they would obtain more prestigious jobs[16]. The authors did not use the discrepancy as an instrument to explain labor market behavior, however.

Other studies have shown that the difference between aspirations and expectations does affect behavior.[17] Specifically, the greater the goal discrepancy score, or the greater the difference between aspirations and expectation level, the more likely is the individual to experience frustration which may lead to maladaptive behavior. The lower the discrepancy score, the more realistically flexible and responsive is the individual to environmental changes.

In the present study of youth job search, care is taken to avoid confusing wage aspirations with the reservation wage. The individual's supply wage is taken as the answer to the question, "What is the minimum hourly wage rate...you would accept at present?" Similarly, the aspired wage is taken as the answer to, "What hourly wage rate...would you like to earn on this job you are looking for?" From these answers a wage discrepancy index is constructed on the basis of the relative difference between the individual's aspired wage and his supply wage. The next section suggests a way in which these and other variables interact in a manner relevant to job search behavior for ubran male youth.

Job Search Model: Investment in Job Search

In this section we formalize the job search model presented in Figure I, Chapter I. To assist in conceptualization of actual job search behavior, we assume that we are dealing with an umemployed young man who is seeking full-time work. On the basis of his previous jobs, the man has some idea of the value of his skills, or, technically, the value of his productivity to a prospective employer. His valuation is subjective and may vary over time, but for the moment we assume W*, which is the least pay per time unit the individual will accept, and b, which is the highest local wage for the skills of the young man. Within these limits, the individual forms an expectation of his wage, denoted as $\overline{W}$, and his conditional expectation may be expressed formally as[18]

$$(33)\quad E[\overline{W}] = \frac{\int_{W*}^{b} Wf(W)\,dW}{\int_{W*}^{b} f(W)\,dW} = \overline{W}$$

where: W is a random variable with the density function $f(W) > 0$ defined in the interval $(W*, b)$ such that $\int_{W*}^{b} Wf(W)\,dW = 1$

That is, $\overline{W}$ is the mean wage offer given the individual's skill and reservation wage. Assume he searches for a job and receives an offer, W_i. If the offer is above his supply wage, W*, the individual then compares it with his mathematical expectations $\overline{W}$. If the offer is above his expected wage, $W_i > \overline{W}$, the job offer will be accepted, *ceteris paribus*. The wage rate offered, however, is only one aspect of a new job. If the individual seeks to maximize his wealth he will not necessarily accept any offer. For example, if offered a wage, W_i, where $W* < W_i < \overline{W}$, the individual *might revise his estimate of $\overline{W}$ downward and continue searching*. Similarly, if $W_i > \overline{W}$, he might adjust W* *upward* and continue job search. We hypothesize that wage rates below W* will be rejected, but the final work decision calls for consideration of factors other than the offered wage.

A second dimension to be considered with regard to a potential new job is P*, the length of time the individual believes he will remain at the next job. Thus, if an individual receives a wage offer of $W_i > W^*$, and expects to work P^* time units, the product $(W_i \cdot P^*)$ is an estimate of the gross wage benefits of the new job. The gross wage bill is an important factor in whether an offer is accepted. Nevertheless, our hypothesis is that acceptance is based on the net value of the new job, or the gross benefits less the search or acquisition costs.

There are several components of search costs. In the case of the unemployed job seeker, foregone work time represents a cost in terms of lost income, depending upon how he became unemployed. That is, for the voluntary quit, this cost is valued at the last wage rate times the lost work hours. For those individuals laid off, time may have a negligible cost; but for both types of unemployed individuals (the quits and the layoffs), the costs incurred in physically going from prospective employer to prospective employer should be considered. Travel costs depend on the price, availability, and extent of public transportation, whether the individual owns or has access to a car, and the degree to which the individual must depend on direct gate applications to find a job. There may be other search expenses, such as fees to private placement firms or outlays for newspaper purchases. For a young man, however, these other costs are likely to be negligible. We then define the cost per time unit of job search as, C, the sum of foregone income, travel costs, and incidental expenses, each taken per time unit. Total search costs are the product of C and the duration of job search, Z.

Finally, the unemployed job-seeker has to consider certain benefits from remaining unemployed, including additional leisure and possible welfare payments or unemployment compensation. We shall refer to these as non-work benefits, I.

Having added several non-wage dimensions to the work decision, again consider the likelihood of the offer being accepted. We suppose the individual looking for a job receives an offer of W_i, where $W_i > W^*$. By definition, the wage is acceptable. The likelihood of the job being taken depends on the individual's comparison of expected earnings from the job relative to the costs and benefits of remaining unemployed. Thus a first approximation to the net value of a prospective job is given by

$$(34) \quad \text{Net Value} = [W_i \cdot P^*] - [(C \cdot Z) - (I \cdot Z)]$$

where the net value of a new job equals the gross wage benefits, $(W_1 \cdot P^*)$, less the cost of looking for a job, net of non-work benefits, $[(C \cdot Z) - (I \cdot Z)]$. If gross benefits exceed net search costs, the offer will probably be accepted. An exception occurs in the case where the difference between work benefits and net unemployment costs is positive but below a threshold sufficient to lead to an immediate return to work. This threshold is subjective and difficult to monetize, inasmuch as subjective leisure benefits are involved. For instance, one man might prefer to remain unemployed if net work benefits are $30 per unit time, whereas another might accept such an opportunity, i.e., the marginal utility of leisure may differ from one person to another. Non-monetary benefits aside, we expect a positive net value to lead to job acceptance.

The decision rule implied by equation (34) is an oversimplification, of course. This study examines several independent variables such as age, education, and race, which may influence the levels of W_i, P^*, C, Z, and I. In addition, equation (34) is oversimplified in its treatment of time.

Equation (34) necessitates the comparison of two monetary flows covering two time periods. Implicit in the equation is the idea that one dollar in the first time period, Z, is equal in value to one dollar in the second and future time period, P*. Barring risk consideration, the only way this is possible is for the market rate of interest to be zero. Since this is unlikely, if investment opportunities yielding something greater than zero are available, the future dollar will be worth less than the present dollar, because the present dollar will be worth its original value plus compound interest. To allow for the difference in values between present and future benefits, we discount the future cash flow into present value terms. The present discounted value of the new job is the sum of the discounted cash flows over the expected P* time periods, or

$$(35) \quad \text{Gross present value} = \sum_{t=Z}^{P^*} \frac{W_i}{(1+r)^t}$$

Where: $r > 0$ is the current market rate of interest and W_i is an acceptable offer wage that is constant over time.

At the time the individual receives the job offer, with a wage and time dimension, he has already incurred search costs. Presumably these costs were borne with the expectation that the satisfactions or benefits of the new job would compensate for search costs.[19] In addition, these costs were incurred with the expectation that the potential benefits of the new job would yield at least as great an incremental reward as the search costs, had the search costs been invested in alternative market opportunities during the search time. That is, the total cost of search at the time the individual receives an acceptable job offer is an amount *greater* than the simple product of the net cost per time unit and the length of search, or $([C-I] \cdot Z)$.

If the individual had the opportunity to invest an amount equal to (C-I) at each of the Z time periods, the accumulated value of his search costs after Z periods is given by

$$(36) \quad \text{Accumulated Search Costs} = \sum_{t=1}^{Z} [\bar{C}_t - I_t] (1+r)^t$$

Having adjusted our definition of search benefits and costs to allow for explicit consideration of time, we can now re-write equation (34) as

$$(37) \quad \emptyset = \sum_{t=Z}^{P^*} \frac{W_i}{(1+r)^t} - \sum_{t=1}^{Z} C_t (1+r)^t$$

Where: for convenience the C_t in this equation equals what was called $[\bar{C}_t - I_t]$ in equation(36).

That is, net wealth from job search $\emptyset$ is the difference between the discount present value of the new income flow less the accumulated costs of looking for work.

In Chapter I, we listed certain questions of special interest to this study. The first question asked was whether black and white men derive the same monetary benefits from job search. We can now specify the question in order to determine if the value of $\emptyset$ differs between races.

For the unemployed job seeker, the values of W_i, P*, C, and Z are interrelated. An individual attempting to maximize $\emptyset$ might consider several combinations of these endogenous variables. For example, wage, W_i, and job duration, P*, might be viewed as substitutes. That is, for a long and steady job a man might be willing to accept a lower wage rate. Similarly, a skilled individual expecting a higher wage might be willing to spend more money looking for a job. Here W_i and C are complements. In addition to skill level, these four variables are affected by other qualitative measures such as age, education, marital status, and risk attitudes. Furthermore, quantitative measures, such as other family income, savings, and previous wage rates are likely to influence the equilibrium values of W_1, P*, C, and Z. Because those four endogenous variables are interrelated, a simultaneous-equation model is needed.

Job Search Model: A Behavioral Model of Youth Job Search

The survey of Chapter II and the foregoing discussion in this chapter have postulated certain inedpendent variables which were shown in Figure I of Chapter I. We now enumerate both the dependent and independent variables in TABLE 3.1.

TABLE 3.1 Variables of Job Search Model*

Endogenous Variables

$\hat{W}$ = The final supply wage which is greater than or equal to W^*, the reservation wage with no search activity

C = Cost of Search per week

Z = Length of Search in Weeks

P^* = Expected weeks on new job

Predetermined Variables

A = Age to nearest year

E = Formal education in years

B = Number of dependents

L = Composite index of informal skill training

R = Race variable

Y = Non-work income per week in dollars

V = Assets in dollars

W = Hourly wage rate of last job

N = Weeks worked last job

A_1 = Risk Attitude Index

A_2 = Interview Anxiety Index

A_3 = Achievement Value

S_1, S_2, S_3, = Method of job search
- S_1 = State Employment Agency
- S_2 = Direct application
- S_3 = Friends and relatives

J = Extensiveness of job search

O = Index of low paying occupation

T = Wage Discrepancy Score

Q = Index of whether voluntarily unemployed or not

---

[*] *Note*: Several wage rates have been identified. W_i is the wage actually offered the individual as the *demand wage*, which the individual searcher can not readily influence. $\bar{W}$ is the individual's *expected wage* or his belief as to what is the average demand wage being offered the person of his skills. W^* is the *supply wage* or the least acceptable pay for a given amount of work.

Since neither $\bar{W}$ nor W^* actually represents an offered wage, W_i was used in equations (34), (35), and (37). However, as this study is concerned with supply factors affecting differences in job search behavior, it is necessary to concentrate on W^* and $\bar{W}$. Thus for the individual unemployed and looking for a job, the correct wage to include in equation (37) may not be a real offer, W_i, but what the individual believes W_i to be, or $\bar{W}$.

As $\bar{W}$ may vary in a dynamic setting involving changes in W^* and random arrivals of W_i, we define a fourth wage, $\hat{W}$, which we call the final supply wage. This variable is above W^* and reflects past W_i as well as the original W^* and $\bar{W}$. This variable, $\hat{W}$, is discussed in the last part of this chapter and later serves as a proxy measure W_i in computing ϕ, the net wealth from search.

Equations (38-41) specify the structural equations of the theoretical model of job search behavior that is tested in this study. Each equation is a hypothesis suggesting a linear relationship between one dependent variable, M_i, other endogenous terms and a number of predetermined variables, and a disturbance term ε that represents the nonsystematic errors. For notational convenience, we suppress ε. Each equation is given with a table offering the hypothesized algebraic sign of the coefficient variable. Following convention, the equation coefficients are given in Greek letters, αi, and the entries to be estimated given in the corresponding table, are listed in Latin letters, A_i .

The supply wage, $\hat{W}$, is given as of a moment in time. For the job seeker, the value of $\hat{W}$ is subjective, involving consideration of how long he has been searching, past wage rates, and the method whereby he expects to find a job. In addition, a number of qualitative variables outside the individual's control, such as age, race, and risk attitude, may influence the choice of $\hat{W}$. Equation (38) expresses these ideas formally. Table 3.2 then offers explanations regarding the expected effect of each variable on $\hat{W}$.

$$(38) \quad \hat{W} = \alpha_0 + \alpha_1 Z + \alpha_2 P^* + \alpha_3 E + \alpha_4 L + \alpha_5 A + \alpha_6 E + \alpha_7 A_1 + \alpha_8 A_2 + \alpha_9 R + \alpha_{10} S_1 + \alpha_{11} O + \alpha_{12} T + \alpha_{13} H$$

TABLE 3.2 Hypotheses to be Tested Regarding W, the Supply Wage

Hypothesis	Sign	Reason for Expected Sign
1. The shorter the duration of search the greater $\hat{W}$	$a_1 < 0$	The empirical studies of Kasper[20] and Sobel[21], et.al. and the theoretical analysis of Holt[22] support this hypothesis for general age groups. Also see Gronau[23] and the sources there.
2. The longer the individual expects to remain on the job the greater $\hat{W}$	$a_2 > 0$	Although contrary expectations expectations following A. Smith[24] have been mentioned, we expect the job as a permanent job, the greater W. Gronau also believed a_2 0.[25] Yet his analysis combines our hypothesis a_1 0 and a_2 0. He says that W must fall as Z increases due to finite time limiting P* and, hence, total job search benefita. We believe the effects can be divided.
3. The older, more skilled, and more educated the individual, the greater $\hat{W}$	$a_3, a_4, a_5 > 0$	On productivity grounds we would expect more experienced and more trained individuals to be worth a higher wage, and know it.
4. The greater the last wage rate, the greater $\hat{W}$	$a_6 > 0$	Again, the awareness of one's past worth is likely to influence one's present estimate. See Holt[26].
5. The greater the risk propensity, the greater $\hat{W}$	$a_7 > 0$	The bargaining study discussed in Chapter II suggests this hypothesis.
6. The greater the index of interview anxiety, the lower $\hat{W}$	$a_8 < 0$	Interview anxiety is a desire to avoid conflict[28]. Hence, generalization of this desire would appear to imply that fear of job rejection, due to a higher W*, viz a conflict would cause an individual to lower W* the greater his conflict avoidance index.
7. We expect black race to have negative influence on $\hat{W}$	$a_9 < 0$	Black men average lower pay than white men for the same work[29].

TABLE 3.2 Continued

Hypothesis	Sign	Reason for Expected Sign
8. If the new job is found through the State Employment Agency, we expect a lower $\hat{W}$	$a_{10} < 0$	Research by Kidder, Ullman, and others suggests the best jobs are found informally[30]. Thus, jobs found by use of a state employment agency are likely to pay less. The job searcher, aware of this, lowers his reservation wage.
9. Individuals with a job history in a low-wage occupation will have a lower reservation wage.	$a_{11} < 0$	Wage rates differ by occupational category. The individual's supply wage W should reflect the person's awareness of this difference.
10. Persons experiencing transportation problems will have lower $\hat{W}$	$a_{12} < 0$	Being confined to a certain geographical region is likely to lower the number of potential job offers. Stigler's analysis leads us to expect a low $\hat{W}$ the fewer number of job offers[31].

In addition to the variables listed, the individual's wage discrepancy score, H, the relative difference between aspired wage and acceptance wage is likely to affect W. A priori, however, we cannot determine if a large H is more apt to cause a negative self-evaluation and hence $a_{13} < 0$, or whether added determination to find a higher pay will cause $a_{13} > 0$.

The cost per week of looking for a job depends first of all on whether the individual is voluntarily or involuntarily unemployed. Time is valued as foregone income of the last job and the foregone income is added if the searcher quit his last job. Secondly, travel costs must be considered by miles per day and mode of travel. Finally, expected fees to private employment agencies and other special search costs must be considered. Thus, we define job search costs, C, as the sum of time, travel, and other costs. Again, the value of C per week is likely to vary according to a person's age, experience in finding previous jobs, and attitudinal characteristics. The following equation and table present the hypotheses to be tested regarding job search costs.

$$(39) \quad C = \beta_0 + \beta_1 Z + \beta_2 A + \beta_3 A1 + \beta_4 V + \beta_5 R + \beta_6 S1 + \beta_7 S2 + \beta_8 S3 + \beta_9 J + \beta_{10} T + \beta_{11} Y$$

TABLE 3.3 Hypotheses Regarding C, The Cost of Job Search

Hypothesis	Sign	Reason for Expected Sign
1. The longer job search has progressed, the greater C	$b_1 > 0$	An individual looking for a job proceeds from the more promising easily identified possibilities to the more obscure[32]. Hence, his expenditures on search per week rise commensurately.
2. The greater a person's age, the lower C	$b_2 < 0$	Older young men, when age 18 to 21 may be less likely to have quit[33] their last job. Also, from experience and general labor market knowledge, their travel in job search may have greater purpose or a less random aspect than younger men.
3. The greater the risk attitude index, the greater C	$b_3 > 0$	A great risk propensity may lead to a greater likelihood of quitting the last job and traveling widely in search of work.
4. Greater financial assets enable greater expenditures on search	$b_4 > 0$	Security caused by savings, and other family income enable greater selectivity in job search.
5. Black young men are apt to have different costs than white men	$b_5 = ?$	Black men use the State Employment Agency more and direct application methods *less* than do whites to find jobs[34]. Both imply lower costs. Blacks have greater quit races:[35] this implies greater costs. *A priori* we cannot say which will be greater.
METHOD OF SEARCH		
6. Search costs are apt to be greater		The method of search influences the cost per week of looking for a job mainly by travel costs incurred in obtaining job information.
(1) the less the State Employment Agency is used	$b_6 < 0$	
(2) the more direct application is used	$b_7 > 0$	
(3) the less friends and relatives are used	$b_8 < 0$	
7. Search costs are greater the more average contacts per week	$b_9 > 0$	The more the average contacts per week, the greater the travel costs and hence the greater C.

TABLE 3.3 Continued

Hypothesis	Sign	Reason for Expected Sign
8. Travel problems will reduce search costs	$b_{10} < 0$	Travel problems will cause less door-to-door applying and hence less search costs.
9. *A priori*, the effect of non-work income on search cost level cannot be determined	$b_{11} = ?$	Whether young men will simply not try as hard to find a job if they have greater non-work income, $b_{10} < 0$, or whether they will look on the non-work income as a source of financial security enabling even greater search efforts cannot be determined *a priori*.

The duration or length of looking for a job controls and is controlled by several factors such as: the wage a youth will accept, the length of time expected on the next job, how long it took to find the last job, and a number of attitudinal and demographic variables. Formally, these ideas are expressed as:

$$(40) \quad Z = \sigma_0 + \sigma_1 W + \sigma_2 P^* + \sigma_3 A + \sigma_4 B + \sigma_5 R + \sigma_6 Y + \sigma_7 V + \sigma_8 A1 + \sigma_9 A3 + \sigma_{10} J + H_{11} + \sigma_{12} T + \sigma_{13} Q$$

TABLE 3.4 Hypotheses Regarding Z, the Number of Weeks of Job Search

Hypothesis	Sign	Reason for Expected Sign
1. The greater the reservation wage, the longer Z	$v_1 > 0$	See Proposition I Chapter II for a formal derivation. Loosely, the greater W^*, hence the greater $\hat{W}$, the more restricted the sample of acceptable offers, and hence the longer sampling must continue before finding an acceptable offer. Also see Stevens paper[36].
2. The greater the expected duration of the next job, the greater Z	$v_2 > 0$	In balancing total costs and benefits of job search, the individual expecting the next job to last longer might be willing to search longer for the next job. Expected job length and search length are compliments.
3. The older a worker the shorter Z	$v_3 < 0$	Experienced and older workers aged 20 and 21 years will suffer less hiring discrimination and hence find work faster than younger workers.
4. The greater the number of dependents, the shorter job search	$v_4 < 0$	The financial burden of dependents will force the job seeker to be less selective and hence more readily accept a job. See Stevens and *The 1972 U.S. Manpower Report*[37].
5. Black young men are expected to search longer than whites	$v_5 > 0$	The suggestion for this hypothesis comes from black-white unemployment duration for youth 14-24[38], which show blacks have greater average unemployment duration per spell of unemployment.
6. The greater the individual's financial assets and non-work income, the more job search will be prolonged	$v_6, v_7 > 0$	The need to accept a job is reduced the greater the pecuniary rewards from not working. For evidence using artificial data see Noel M. Edelson[39]. In addition, Gronau[40] and Mortenson[41] point out that the greater non-work income is likely to cause a higher supply wage, which in turn will lengthen the duration of search.

TABLE 3.4 Continued

Hypothesis	Sign	Reason for Expected Sign
7. The greater the individual's risk index, the longer job search duration	$v_8 > 0$	Looking for a job where wage rates and job length are uncertain is similar to participating in a game of chance. The greater one's willingness to gamble, the greater the propensity to continue to draw an observation. The implication is that risk attitude and search duration are positively related.
8. The greater the achievement value index, the lower the length of job search.	$v_9 < 0$	Sheppard and Belitsky found that of those workers finding jobs in less than five weeks, 36 percent were high in achievement values, as compared to only 22 percent of those unemployed five weeks or longer[42].
9. The greater the extensiveness of job search, the duration of unemployment may be shorter or longer	$v_{10} = ?$	Empirical evidence is mixed regarding the expected effect on search length of the number of companies checked. Sheppard and Belitsky found that workers who found new jobs checked more companies than those still unemployed[43]. Similarly, David Stevens, in his Pittsburgh study, found that workers with more contacts found jobs during the two week period after registering with the state employment office. However, the reverse held true for those clients interviewed six weeks after registration. That is, job searchers unemployed more than two weeks who had fewer contacts were more apt to find a job than their more industrious counterparts.
10. The greater the wage discrepancy score, the longer the job search	$v_{11} > 0$	A greater wage discrepancy score is indicative of behavioral rigidity or inflexibility which is likely to prolong the duration of search. See the second section of this chapter for evidence and further discussion.

TABLE 3.4 Continued

Hypothesis	Sign	Reason for Expected Sign
11. Individuals with transportation difficulties will experience longer search duration	$v_{12} > 0$	Several studies have suggested the lack of a car restricts the area of search and the geographical area of acceptable offers. See, for example, Kidder[45] and Stevens[46]. However, neither found the variable to be a prime reason for restricted and longer job search.
12. Individuals who have quit their last job are apt to search a shorter time period than those unemployed otherwise	$v_{13} < 0$	The individual who has quit his last job incurs an opportunity cost of search and usually sacrifices his eligibility for unemployment compensation. Furthermore, he may have quit his last job with another and better job in mind. These all support a shorter search duration. However, in the case of blacks, who have a higher quit rate, the effect of race may override the above considerations and make $v_{13} > 0$[47].

The duration of work in the next job is the fourth dimension considered by the job seeker. The job search variable determining the net value from investment in search, such as how long the individual has looked and what wage cut-off he has set are likely to affect how long the individual will remain on the next job. In addition, job mobility studies reveal that education, age, and race affect job turnover rates. Finally, job duration behavior is likely to be influenced by past job search efforts, and the individual's attitudinal characteristics. Specifically, these ideas are shown as:

$$(41)\quad P^* = {}_0 + \lambda_1 W + \lambda_2 Z + \lambda_3 A + \lambda_4 E + \lambda_5 R + \lambda_6 N + \lambda_7 A1 + \lambda_8 A3 + \lambda_9 J + \lambda_{10} B$$

TABLE 3.5 Hypotheses Regarding P*, the Duration of Work on the Next Job

Hypothesis	Sign	Reason for Expected Sign
1. The greater $\hat{W}$, the longer P	$g_1 > 0$	Although A. Smith may have correctly identified a human motive of willingness to exchange low wages for steady work[48], we believe the stronger tendency is to hold fast to a job paying at least the individual's acceptance wage.
2. The longer the individual has looked for work, the longer he will remain on the next job	$g_2 > 0$	In terms of equation (36), a greater cost of job search is apt to cause a longer work duration in keeping with maximizing the net wealth from investment in job search. The exception may be in the case of blacks where a greater turnover rate and longer search periods may cause $g_2 < 0$.
3. The older an individual, the longer he will remain on the next job	$g_3 > 0$	A recent review of correlates of mobility found every type of mobility declines with advancing age[49]. Similarly, the Ohio State Longitudinal Study found the average length of service on a job increased with age[50].
4. The fewer years of formal education, the shorter P*	$g_4 < 0$	Empirical evidence on interfirm mobility finds youth with less than a high school diploma are apt to change employers more rapidly than those with more education[51].
5. Black men will have lower expected work durations than whites	$g_5 < 0$	National data reveal blacks have higher turnover rates than whites[51]. For young men, blacks are more likely to change jobs than whites even after allowing for educational and occupational differences.
6. The longer a man worked at his last job, the longer he will remain at his next job	$g_6 > 0$	As the wage sought is based on the last wage, the length of time of the next job is related positively to the likely length of time on the next job.
7. The greater the individual's risk propensity, the shorter p*	$g_7 < 0$	There is a risk involved in changing jobs as all dimensions of a job cannot be known without first hand experience. Thus, the greater an individual's propensity towards risk, the more apt he is to rapidly change jobs.

TABLE 3.5 Continued

Hypothesis	Sign	Reasons for Expected Sign
8. The achievement value index influences the level of P* but the algebraic sign cannot be determined, *a priori*	$g_8 = ?$	Sheppard and Belitsky found an index of achievement value related to job search behavior[54]. However, it is not clear from their discusion whether the individual will fulfill his need to achieve more by working longer at a new job or by standing ready to quit and move quickly to the next best opportunity.
9. The more companies an individual contacts, the longer he will remain at the next job	$g_9 > 0$	Confidence in having made the correct choice is likely to stem from having learned more about available labor market opportunities. Direct company gate inquiries is one way an individual gathers labor market information.
10. Those individuals with dependents will remain longer at the new job than those with no dependents	$g_{10} > 0$	Although relatively few young men are expected to have dependents, the implication of national data is that those having dependents are more attached to the labor force. For example, the 1972 *Manpower Report of the President* shows married men with a spouse present have higher participation rates and lower unemployment rates than do single men[55]. This suggests the length of a job may be greater if dependents are present than if the individual was single.

In this chapter, we have added three important variables to the list of factors affecting job search behavior: risk, attitude, supply wage, and wage discrepancy score. In addition, we have developed a general model of youth job search behavior. Equations (37) through (41) comprise this model: behavioral equations (38) - (41) form the structural equations of the simultaneous-equation model that will be tested using survey data in this study. The next chapter presents the statistical results of the study and the assumptions underlying the hypothesis tests performed.

FOOTNOTES CHAPTER III

1. For example, see Ryan, W.J.L., *Price Theory* (London: Macmillan and Co., Ltd., 1967) pp. 164-165.

2. See Ira Horowitz, *Decision Making and the Theory of the Firm*, Holt, Rinehart and Winston, Inc., 1970, pp.145-149. Section shows use of Jensen's Inequality in analysis of impact of uncertainty in the production function.

3. *Ibid*., Chapter 13, "Recent Developments and the Theory of the Firm: Price-Quantity Determination Under Uncertainty," especially pp. 394-400. And for references on von Neumann-Morgenstern utility theory see J. von Neumann and Oscar Morgenstern, *The Theory of Games and Economic Behavior* and class notes of seminar in Economics of the Firm Under Uncertainty, Spring 1971, Indiana University, Ira Horowitz. For another study which transforms a Marshallian utility function into a von Neumann-Morgenstern utility index, see Jacque H. Dreze and Franco Modifliani "Consumption Decisions Under Uncertainty," Core Discussion Paper No. 6906 (Heverelee, Belgium: Center for Operations Research and Econometrics, Universiti Catholique de Louvain, February 1969), pp. 85.

4. Hirschel Kasper, "The Asking Price of Labor and the Duration of Unemployment," *Review of Economics and Statistics*, Vol. 49, May 1967.

5. Reuben Gronau, "Information and Frictional Unemployment," *American* Economic Review, Vol. LXI, No. 3, Part I, 1971, pp. 290-301.

6. Dale T. Mortensen, "Job Search, The Duration of Unemployment, and the Phillips Curve," *American Economic Review*, Vol. LX, No. 5, Dec. 1970, pp. 347-862. And Charles C. Holt and Martin H. David, "The Concept of Job Vacancies in a Dynamic Theory of the Labor Market," *The Measurement and Interpretation of Job Vacancies*, National Bureau of Economic Research, 1966, pp. 89-92. See also footnote ii, p. 274 in Dale T Mortensen, *A Microeconomic Foundations of Employment and Inflation Theory*, W. W. Norton and Company, Inc., 1970. The footnote distinguishes between Mortensen's and Holt's definitions of an acceptance wage.

7. Charles C. Holt, "Job Search, Phillips Wage Relation and Union Influence: Theory and Evidence," E. S. Phelps, *Op.Cit*., especially pp. 61-63.

8. George J. Stigler, "Information in the Labor Market," *Journal of Political Economy*, Vol. 70, No. 5, Part 2, October, 1962, pp. 94-105.

9. J. J. McCall, "Economics of Information and Job Search," *The Quarterly Journal of Economics*, Vol. LXXXIV, No. 1, February 1970, pp. 113-126.

10. Paul F. Hoel, *Introduction to Mathematical Statistics*, (New York: John Wiley and Sons, Inc., 1964), pp. 133-135.

FOOTNOTES CHAPTER III (Continued)

11. Alfred Marshall, *Principles of Economics*, Eighth Edition, (London: Macmillan and Co., Ltd., 1920), p. 142.

12. *Op. Cit*., Kasper, p. 168.

13. *Op. Cit*., Holt and David

14. *Op. Cit*., Holt in Edmund S. Phelps et.al, "Job Search...Theory and Evidence," In equation (2), p. 63, Holt defines the relationship between an acceptance wage, W_t, and an aspired wage $\tilde{W}_t$ as $W_t = B\tilde{W}_t$ where B is greater than one.

15. Forrest W. Fryer, *An Evaluation of Level of Aspiration As a Training Procedure*, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1964) pp. 4-8.

16. A. P. Barbin, J. J. Salomone, D.P. Jackson, J. A. Ballweg, *Worker Adjustment Problems of Youth in Transition From High School to Work*, (Columbus, Ohio: The Center for Vocational and Technical Education, Ohio State University, December 1970), pp. 119-138.

17. William P. Kuvlesky, "The Social-Psychological Dimensions of Occupational Mobility," Paper presented at the National Vocational-Technical Education Seminar on Occupational Mobility and Migration, (Raleigh: North Carolina University, April 18-22, 1966, K. T. Lewin, T. Dembo, L. Festinger, and P. S. Sears, "Level of Aspiration on J.M.V. Hunt, ed., *Personality and the Behavior Disorders* (New York: The Ronald Press Company, Vol. I, 1944), pp. 333-378.

18. *Op. Cit*., Mortensen.

19. These arguments leading to equation (37) follow those of Alfred Marshall, *Op. Cit*., pp. 351-354.

20. *Op. Cit*., Kasper, p. 168.

21. Irwin Sobel and Richard C. Wilcock, "Job Placement Services for Older Workers in the United States," *International Labor Review*, Vol. 88, August 1966, pp.139-141.

22. *Op. Cit*., Holt and David, pp. 89-92, and Holt "Job Search...", pp. 61-63.

23. *Op. Cit*., Gronau, pp. 290-301.

24. Simon Rottenberg, "On Choice in Labor Markets," *Industrial and Labor Relations Review*, Vol. 9, January 1956, pp. 183-199.

25. *Op. Cit*., Gronau, pp. 290-301.

26. *Op. Cit*., Holt, "Job Search...", pp. 61-63.

FOOTNOTES CHAPTER III (Continued)

27. Donald L. Harnett, et.al., "The Influence of Risk-Taking Propensity on Bargaining Behavior," Behavioral Science, Vol. XIII, March 1968, pp. 1-11.

28. Harold L. Sheppard and A. Harvey Belitsky, The Job Hunt, (Baltimore: The John Hopkins Press, 1966), pp. 133-145. Also see, G. Mandler and S.B. Sarason, "A Study of Anxiety and Learning." Journal of Abnormal and Social Psychology, Vol. 47, 1952, pp. 166-173.

29. A. Wohlsetter and S. Coleman, Race Differences in Income, (Santa Monica: The Rand Corporation, R-579-OEO, November 1970). Also see O. D. Duncan, "Inheritance of Poverty or Inheritance of Race?" in D. P. Moynihan, ed., On Understanding Poverty (New York: Basic Books).

30. See Table 2.1 Chapter II.

31. George J. Stigler, "The Economics of Information," Journal of Political Economy, Vol. LXIX, No. 3, June 1961, pp.213-225.

32. Charles C. Holt, "The Phillips Curve and Inflation and Unemployment," in Phelps, et.al., ed., Op. Cit., p. 228.

33. National data show all types of job shifts are less as youth 18 and 19 years old are compared to those 20-24 years. See Gertrude Bancroft and Stuart Garfinkle, "Job Mobility in 1961," U. S Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 35, p. A-12.

34. See Table 2.1, Chapter II.

35. Kathryn D. Hoyle, "Job Losers, Leavers and Entrants... A Report on the Unemployed," Monthly Labor Review, Vol. 92, No. 4, April 1969, Table 4, p. 28, "Unemployment..."

36. David W. Stevens, "Duration of Unemployment: Theory and Evidence," paper presented at Western Economic Association Meetings, Vancouver, British Columbia, August 1971. Using 1970 data of 168 unemployed Cleveland men, Stevens found that those who dropped their acceptance wage from one to ten percent below their last pay found jobs in less time than those reluctant to lower their acceptance wage.

37. Op. Cit., Stevens, also, U. S. Department of Labor, 1972, Manpower Report of the President, March, 1972, especially p. 192 and Table B-1, "Employment Status of the Population, by Marital Status and Sec. 1947-71." Married individuals, spouse present, consistently have lower unemployment rates than do single individuals.

38. Andrew I. Kohen and Herbert S. Parnes, Career Thresholds: A Longitudinal Study of the Education and Labor Market Experience of Male Youth, Vol. III, June 1971, The Center for Human Resource Research, Ohio State University, Columbus, Ohio, p. 64.

FOOTNOTES CHAPTER III (Continued)

39. Noel M. Edelson, "Job Search and Unemployment Benefits," Discussion Paper No. 215, (Philadelphia: The Department of Economics, University of Pennsylvania, July 1971).

40. *Op. Cit*., Gronau.

41. *Op. Cit*., Mortenson.

42. *Op. Cit*., Sheppard and Belitsky, p. 130.

43. *Ibid*., p. 81.

44. Alice H. Kidder, "Job Search Among Negroes," Industrial Relations Research Association, Proceedings of Spring Meeting, 1969, Columbus, Ohio, pp. 482-488. Also see Kidder, "Interracial Comparisons of Labor Market Behavior," unpublished Ph.D. dissertation, Massachusetts Institute of Technology, Department of Economics, 1967.

45. David W. Stevens, *Supplemental Labor Market Information as a Means to Increase the Effectiveness of Job-Search Activity*, (University Park, Pennsylvania: Institute for Research on Human Resources, Pennsylvania State University, August 1968), p. 120.

46. *Op. Cit*., Stevens.

47. See U. S. Department of Labor, 1972, *Manpower Report of the President*, March 1972, especially pp. 181-183 and Table A-21, "Unemployed Persons 16 Years and Over,Unemployment Rates, and Duration of Unemployment, by Reason for Unemployment: Annual Averages, 1967-71."

48. *Op. Cit*., Rottenberg.

49. Herbert S. Parnes, "Labor Force Participation and Labor Mobility," *A Review of Industrial Relations Research* (Madison, Wisconsin: Industrial Relations Research Association, 1970), pp. 44-46.

50. Frederick A. Zeller, John R. Shea, Andrew I. Kohen, Jack A. Meyer, Career Threshold: *A Longitudinal Study of the Educational and Labor Market Experience of Male Youth*, Vol. II, (Columbus, Ohio: The Center for Human Resource Research, Ohio State University), p. 29.

51. *Op. Cit*., Kohen and Parnes, p.37.

52. Ralph E. Smith and Charles C. Holt, "A Job Search-Turnover Analysis of the Black-White Unemployment Ratio," A Working Paper, (Washington, D.C.: The Urban Institute, January, 1971).

53. *Op. Cit*., Kohen and Parnes, p. 78.

54. *Op. Cit*., Sheppard and Belitsky, pp. 122-133.

55. *Op. Cit*., *1972 Manpower Report of the President*.

CHAPTER IV

AN ECONOMETRIC ANALYSIS OF YOUTH JOB SEARCH BEHAVIOR

This chapter attempts to explain youth job search behavior, and involves the use of survey data to estimate the parameters of an econometric job search model. There are three main parts to the chapter: (1) definitions of the terms used in the study, (2) presentation of the statistical model and statistical assumptions involved in estimation of the parameters of the search model, and finally, (3) presentation of the results of the analysis.

The results fall in two general categories. First, regression estimates of the parameters of the job search model are given, using a two-stage least-squares estimation procedure. In the second section of the results, the solution values of the endogenous variables of the job search model are used to compare the net value of the investment in job search between white and black youth.

Data Sources: Definition of Terms Used in the Study

In Table 3.1 of Chapter III, we listed four endogenous and nineteen exogenous variables used in the simultaneous-equation job search model. In this section we indicate how these variables are measured.

Endogenous Variables

(a) W, the Final Supply Wage

The net value of investment in job search was computed by using a wage figure that reflected a wage offered and accepted by the individual seeking a job The young men in this study were asked, "What is the minimum hourly wage you would accept at present?" For this study, the answer to this question was used to estimate $\hat{W}$, the final supply wage.

There may be some objection to this procedure since the answer to the question is a measure of W*, the lower limit of the relevant wage range, or reservation wage of equation (33) Chapter III, and hence, may be an underestimate of the true hiring wage, $\hat{W}$. But, the interviews took place while the young men were unemployed. Since we can assume that their finding a job immediately after the interview was unlikely, and since we have hypothesized in Table 3.2.1 that the supply wage falls as a function of duration, the answer to the question may not underestimate their true hiring wage, $\hat{W}$.

(b) C, Cost of Search Per Week

The cost-of-search measure used in this study is the sum of direct expenditures, travel costs, and foregone income. The first category includes the anticipated costs of moving, fees to private agencies, and miscellaneous expenditures. In addition, letters written, arbitrarily valued at one dollar each, as well as long distance phone calls were included in direct expenditures. Travel costs were estimated from data obtained on first and second travel mode, and miles per day per mode[1]. For individuals walking or hitchhiking no travel cost was computed. For those traveling by bus and averaging up to three miles per day, a cost of 40 cents per day was estimated, for 40 cents was the one-way fare for any one-way ticket with the Indianapolis Transit Authority. Bus travel of more than three miles was valued at 80 cents per day.* The value of job search by car depended on car ownership. If the car were owned by the individual, travel costs were valued at 10 cents per mile, as recommended by Walters[2]. If the car were borrowed, a nominal rate of 5 cents per mile was estimated. Taxi fare was valued at one dollar per mile as the estimated average Indianapolis fare. (This mode was mentioned by only one person out of 300 interviewed.) In cases where two methods of travel were given, the costs were divided in proportion to the miles used in each mode. Midway in the sample it became apparent that not all individuals looked for a job the same number of days per week. A partial sample revealed _3 days per week_ as an approximation to the average days per week _actually spent searching_. Travel costs per week were then estimated as 3 times daily travel costs. The last category of search costs is foregone income. This expense was added only for those persons who had quit their last job, as opposed to being laid off. Its value per week was estimated as the average hourly wage rate of the last job times the average hours per week worked at the last job.

---

*Because the potential distance traveled on 40 cents could have been 1 block of 15 miles, and average length of bus travel per trip was not available, the three mile cutoff was adopted.

(c) Z, the Length of Search in Weeks

This variable was measured as the answer to the question, "How many weeks have you been looking for work?" This measure approximated total search time before the end of search; the approximation is due to the sample design.

(d) P*, Expected Weeks on New Job

"How long do you expect your next job to last in months?" was the question asked. Two problems arose in interpreting this answer. First[23], percent of the black clients and 30 percent of the whites gave non-numerical answers. In these cases the answer used in the analysis below was estimated as the numerical average of the length of service on past jobs. This may be an underestimate of the answer intended for the question. The second difficulty was more subtle, but may have been lessened by the solution to the first problem. Specifically, the distinction between _aspired_ length of service on the next job and what the client _really_ believed his next work duration may not have been clear in the answer given. The more that aspirations influenced the answer, the greater the length, or expected work duration given. Also, since the interviews were conducted in an employment agency, there was, undoubtedly, some suspicion that the survey staff might affect their job-finding. Thus, answers as to how long the individuals expected to remain at the next job were probably inflated. It was considered that the adjustment made for non-numerical answers counteracted possible inflations due to the second difficulty.

Predetermined Variables

(e) - (g) A, Age in Years; E, Formal Education; B, Number of Dependents.

Age and education variables were estimated to the nearest year. The number of dependents was the answer given to, "How many persons, not counting yourself (and including your wife even if she works), are dependent upon you for at least one-half their support?" The answers to all three variables, A, E, and B, were found consistent in comparing the answers to the questionnaire and state employment service application form answers.

(h) L, Composite of Informal Skill Training

This variable was a linear summation of the training months in the following: unions, apprenticeship programs, private employment, military service, training programs, federal manpower programs, and other agencies providing training. Military service training was valued at 6 months.*

(i) R, Race

Determination of race followed the guidelines of the Indiana Employment Service. For purposes of this study, the variable was treated as a dummy where R = 0 was a white client and R = 1 was a black client.

---

*The figure 6 months was chosen to give uniformity to that portion of military life given to training. It is admittedly somewhat arbitrary, but no less so than the alternatives, i.e. treat the entire 3 year service as a training period vs. assume no on-the-job training and strictly take hours in military school.

(j) Y, Non-Work Income per Week

The measure for this variable used in the regression analysis combined two separate estimates. The first element was the numerical answer to the question, "What are your current means of support?" Odd jobs, unemployment compensation, and past savings were the main items included. The second element in measuring Y was a linear combination of average financial aid from parents, wife's income, financial contributions from other family members, and family welfare or illness benefits. All figures were converted into average weekly values.

Some of the young men in the survey were living at home and given free room and board by their parents. Although such parental provision is non-work income to the young men, we have not included an estimate for shelter in estimating Y. The reason is that the private marginal cost to the parent of providing an extra bed is likely to be very small. For free meals of young men living with parents or relatives, we estimated the weekly addition to income as $6.75. The figure was derived in several steps. A daily poverty food expenditure for the young Indianapolis men was first estimated as 75 cents, a 1966 figure from a Department of Agriculture survey[3]. Next, the figure was inflated by the rate of increase between 1966 and 1971 in the food portion of the Consumer Price Index. Finally, the daily food figure was converted to a weekly value. Equation (42) provides a summary of the values included in the final measure of non-work income.

$$(42)\quad Y = (\text{Current Means of Support}) + (\text{Parental Financial Aid} + \text{Wife's Income} + \text{Other Family Financial Aid} + \text{Welfare and Illness Benefits}) + (\text{Food Provision})$$

(k) V, Assets in Dollars

A composite measure of assets was developed in the study and was defined as follows:

(43) Assets = Value of...Car+Business+House+Securities

Where: Each value was converted from a stock value into an annuity flow value according to the following formula[4].

$$(44)\quad C = \frac{C_0 i(1+i)^n}{(1+i)^{n-1}}$$

Where: C_0 = Stock Value
i = Discount Rate
n = Time Horizon
C = Annuity Flow Value

The car value was determined by asking the respondents to identify their cars by year and model and by then referring to a December 1971 area "Blue Book" of used car values[5]. The Blue Book value was then taken net of remaining car payments and equation (44) applied with a life expectancy of 45 years and a discount rate of 14 percent. The life expectancy is the expected work-life of the young man aged 20 years. It is the relevant figure on the grounds that a man with a car now will continue to have a car at least as valuable throughout his active years. The discount rate is the Indianapolis area annual average loan rate on used automobiles as of October 1971; incidentally, 42 percent of the black clients had cars vs. 66 percent of the whites; corresponding Blue Book values averaged 840 dollars and 735 dollars, respectively.

The other entries in equation (43) were determined as follows. Securities were taken in whole value and converted using equation (44) and a time period of 45 years and a 5 percent discount rate. The house, business, and other properties were taken net of interest, tax, and mortgage payment. The time period was 45 years with a 5 percent discount figure for the house. For business values, a time of 45 years and a 5 percent interest rate were assumed. The time period for these additional assets again was selected for expected work life The discount rate of 5 percent approximated the net yield on securities, businesses, and other property.

(l) W, Hourly Wage Rate of Last Job

This variable was estimated from wage and salary data. Questions were asked regarding pension plans, health insurance, and supplementary unemployment benefits, and attempts were made to add the monetary value of these fringe benefits to the hourly wage rate. The attempt was unsatisfactory, however, due to the wide variety of answers given, as well as our suspicion that the clients did not understand the questions, gave fictitious answers, or were too young to include these types of fringe benefits in their vector of factors for evaluating a job.

(m) N, Weeks Worked Last Job

This variable was considered to be the interval between beginning and ending the last job. As the job history survey covered only two years, those whose last job began before October 1, 1969 were assumed to have started work on that date.

(n) - (p) A_1, Risk Attitude; A_2, Interview Anxiety; A_3, Achievement Value

Much credit for pioneering the use of attitudinal and opinioned measures in manpower research, specifically in investigation of job search behavior, must go to Harold L. Sheppard[6]. Actually, the questions asked of the clients in this study on interview anxiety and achievement value were used previously in Sheppard's Erie, Pennsylvania, study of unemployed job searchers. These questions appear in Table 4.1 and Table 4.2 Although the original questions for A_2 and A_3 are the same as Sheppard's, he developed his indexes by assigning numerical weights to the answers and designating the upper and lower quartile as high and low scores[7]. We found two objections to Sheppard's methodology. First, his numerical weights did not allow for relative differences in the strength of different questions in contributing to a behavioral index; each weight was identical. Secondly, division of the scores into quartiles and then basing most analysis on the upper and lower quartiles were too arbitrary. Why not deciles or some other measure?

In this study we developed attitudinal indexes using factor analysis[8]. The goal of developing indexes for use as explanatory variables was the same as Sheppard's; but in this case, different weights were assigned the answers to the different questions and regression analysis was used to build the final scores. In addition, factor analysis afforded a method of measuring the degree to which the questions asked covering one aspect did, in fact, measure only one aspect or factor.

The factor analysis routine used in developing each attitudinal index involved several steps[9]. First, a principal-component solution was developed using an interative scheme. Next, in order to extract factors, an orthogonal rotation of the solution was performed using a varimax criterion. From this rotation, factor score coefficients were developed that were used as regression weights.

Table 4.1 and Table 4.2 show how the indexes for interview anxiety and achievement values, respectively, were estimated. In each case, the raw answers were converted to numerical weights 1, 2, 3, 4. These raw weights were then converted into standardized or Z-scores. Finally, the composite Interview Anxiety Score was built by adding each of the separate question scores.

TABLE 4.1 DERIVATION OF INTERVIEW ANXIETY SCORE, A_2

83. I would like you to tell me something about the way you feel when you know you will be interviewed for a job. At that time, do you feel: Very sure of yourself?____Fairly sure of yourself?____A little unsure of yourself?____Very unsure of yourself?____

84. Before being interviewed for a job, some people are aware of an "uneasy feeling." How about yourself? At that time, are you: Very much aware of it?____Quite aware of it? A little bit aware of it?____Not aware of it at all?____

85. Before being interviewed for a job, would you say that your heart beats: No faster than usual?____Somewhat faster than usual?___Much faster than usual?____Very much faster than usual?____

86. Before being interviewed for a job, how moist do the palms of your hands become? Are they: Very moist?____Fairly moist? ____Just a bit moist?____Not moist at all?____

87. Before being interviewed for a job, do you worry: Very much? ____A fair amount?____Hardly worry?____Not at all?____

88. Before being interviewed for a job, do you perspire: Very much?____A fair amount?____Just a bit?____Not at all?____

89. Before being interviewed for a job, how nervous would you say you usually feel? Very nervous?____Fairly nervous?____A bit nervous?____Not nervous at all?____

90. After being interviewed for a job, how much do you worry about the results? Not at all?____Just a bit?____A fair amount?____ A great deal?____

$$A_2 = \text{Interview Anxiety Score}^* = -0.081(\text{Var083}) + 0.156(\text{Var084}) - 0.193(\text{Var085}) + 0.120(\text{Var086}) + 0.259(\text{Var087}) + 0.133(\text{Var088}) + 0.287(\text{Var089}) - 0.088(\text{Var090})$$

Where, for example, -0.081 is a factor score coefficient, or regression weight, and (Var081) is equal (answer to #81 - mean of #81)/(standard deviation of #81)

---

*The minus signs reflect those questions where the order of the required answer was reversed from "greater to less" to "less to greater." This was done as an added consistency check.

TABLE 4.2 DERIVATION OF ACHIEVEMENT VALUE SCORE, A_3

Now I'd like to get your reactions to some things that people have different opinions on. Do you strongly agree, agree, disagree, or strongly disagree with these statements?

91. In his work, all a person should want is a secure, not-too-difficult job with enough pay for a nice car and home. SA____A____DA____SDA____

92. The wise person lives for today and lets tomorrow take care of itself. SA____A____DA____SDA____

93. When a person is born, the success he will have is in the cards, so he may as well accept it. SA____A____DA____SDA____

94. It is best to have a job as part of an organization all working together, even if you don't get individual credit. SA____A____DA____SDA____

95. Don't expect too much out of life and be content with what comes your way. SA____A____DA____SDA____

96. Planning only makes a person unhappy since your plans hardly ever work out, anyway. SA____A____DA____SDA____

$$A_3 = \text{Achievement Value Score} = 0.155(\text{Var091})+0.224(\text{Var092})+0.266(\text{Var093}) +0.050(\text{Var094})+0.278(\text{Var095})+0.284(\text{Var096})$$

For risk attitude score, two measures were developed. First a financial risk score was derived as the weighted sum of the answers to questions #97, #99, #101. These three questions were identified as indicative of a single factor after analyzing the rotated factor matrix. A second measure of risk, physical risk, was derived from the answers to questions #98 and #100. The reason only five questions were used out of nine questions asked was that answers to questions #102 through #105 did not appear to be closely associated with or belong to the same factor as did the two sets given.

TABLE 4.3 DERIVATION OF FINANCIAL RISK SCORE, A_1F

Now I would like to ask a few questions about your likes and dislikes and habits in everyday life. There are no right or wrong answers to these questions; one answer can be just as good as some other answer.

97. Do you like to bet with very small stakes just for the kick you get out of gambling? Yes____Cannot decide____No____

99. Do you like to play games and bet on your chances of winning? Yes____Cannot decide____No____

101. Do you like to bet money on athletic events? Yes____Cannot decide____No____

104. If I offered you \$10 now or \$15 in 10 days, which would you prefer? \$15 in 10 days____Cannot decide____\$10 now____

105. Which would you prefer, a job which paid you a lot per week but left you with the chance of frequent unemployment or a lower paying but steady employment job? High pay, frequent UE____ Cannot decide____Low pay, steady____

A_1F = Financial Risk Score = 0.471(Var097)+0.436(Var099)+0.182(Var101)

TABLE 4.4 DERIVATION OF PHYSICAL RISK SCORE, A_1P

98. Would you like to race with stock car drivers? Yes____Cannot decide____No____

100. Would you like to drive a "hot rod" in a race? Yes____Cannot decide____No____

102. Would you like to be a test pilot? Yes____Cannot decide____No____

103. Would you like to work as a flying trapeze acrobat in a circus? Yes____Cannot decide____No____

A_1P + Physical Risk Score = 0.490(Var098)+0.499(Var100)

(q) - (s) S_1, S_2, S_3, Methods of Search

Several authors have distinguished between search methods used and those methods actually resulting in job finding[10]. This study recognizes the distinction, yet the particular sample design of this study did not enable us to use actual methods of job finding success. Instead, we used data on what method the still unemployed individuals believed would work for them in finding a job.

S_1 = 1 if believe next job to be found through state employment office; 0 otherwise

S_2 = 1 if believe next job to be obtained by direct application; 0 otherwise

S_3 = 1 if believe next job to be found through friends and relatives; 0 otherwise

(t) J, Extensiveness of Job Search

This variable was measured as the average number of companies personally contacted per week of current job search.

(u) O, Index of Low Paying Office

Persons whose last job was in a service occupation averaged \$ 1.67 per hour relative to the overall average of \$2.35 per hour. To indicate this downward shift in pay scale, 1 was used if the last job was a service occupation; 0 otherwise.

(v) H, Wage Discrepancy Score

This variable was defined as the relative difference between the aspired and reservation wage. These variables, in turn, were estimated as answers to the questions, "What hourly wage rate would you like to earn on this job you are looking for?" and "What is the minimum wage rate you would accept at present?"

(w) T, if Travel Problem

he had access to a car.

(x) Q, Index of Voluntarily or Involuntarily Unemployed

This variable was defined as a dummy variable where Q = 1 if the client indicated he quit his last job; 0 otherwise.

Assumptions Regarding the Theoretical Specifications Which Enable Empirical Parameter Estimation

In the last chapter we offered four equations (38) - (41) representing linear relationships explaining job search behavior. To enable us to make estimates of the parameters of the job search model and to allow us to make subsequent statistical inferences about the population of all Indianapolis youth using the State Employment Service, we use a model of how the observations were generated. For now, assume equation (45) represents a general form of job-search model.

$$(45)\quad M_i = \sum_{j=1}^{21} R_{ij}\rho_j + \epsilon_i \ ; \quad i = 1,\ldots,281$$

Where: M is the 281 x 1 vector of observations on the dependent variable
ρ a 21 x 1 vector of coefficients
R a 281 x 21 matrix of observations on the independent terms
ϵ a 281 vector of residuals

In this study, estimates of the ρ_j and ϵ are based on 281 sample observations. Their cross-section joint observations of M and R are a sample from a population of such joint observations. Certain assumptions are required if we are to estimate the regression coefficients and the parameters of the distribution of the error terms, and, hence, make inferences about the population from these sample estimates. The requisite assumptions are those underlying the classical linear regression model, which are:

(1) The sample of 281 joint observations is a sample from a population in which there is a conditional distribution of M for every set of values of R_1, $R_2, \ldots R_{19}$. The mean of the conditional distribution is a linear function of $R_1, \ldots R_{19}$, the variance of the conditional distribution is constant. In addition, we assume that successive $M_d (d=1, \ldots 281)$ are independent of one another. For any single observation, M depends on the R_j and a disturbance term.

(2) Concerning the R_j, we require that no exact linear relationship exists between R_j and R_k (for all j and k). Also, the regressors are nonstochastic which implies that the disturbance is distributed independently of the exogenous variable R_j.

(3) The disturbance ϵ_i has a mean of zero and a constant variance. In addition, each ϵ_i is independent of every ϵ_k for all $i \neq k$.

How well are these assumptions met in the present analysis? In the first place, equation (45) is not quite an accurate representation of a simultaneous-equation model of job search since some "dependent" terms determine other "dependent" terms. Equation (46) thus amends equation (45) as follows:

$$(46) \quad m = M_1 \beta + R_1 \lambda + \epsilon$$

Where:
m_1 is the 281 x 1 vector of observations on the dependent variable
M_1 is the 281 x g matrix of observations on the other endogenous variables in the equation
β is the g x 1 vector of coefficients attached to the variables in M
R_1 is the 281 x k matrix of observations on the predetermined variables appearing in the equation
λ is the k x 1 vector of coefficients associated with R_1 and
ϵ is the 281 x 1 vector of disturbances in this equation.

To correct for the possibility that the estimators of equation (46) will be biased and inconsistent, the present analysis estimates the parameters using a two-stage least squares procedure, which is also known as the "generalized classical linear" method[11].

Basically, the two-stage least squares technique replaces the M_1 with a computed matrix M_1, which is purged of the stochastic element. This step is Stage 1 and involves the regression of all endogenous variables on all the exogenous variables in the simultaneous-equation system. Stage 2 then performs ordinary least-squares of m on M_1 and R_1. That is, the second step involves regressing the dependent endogenous variables on the estimated, independent endogenous variables in the equation, and the exogenous variables in the equation.

A second broader issue regarding empirical estimation of equation (46) is that of identification, or whether a structure can be inferred uniquely from the model and a suitable set of data[12]. As they are presented in the last chapter, equations (38)-(41) are overidentified. Specifically, the numerical difference between the pre-determined variables in the system but not in the equation is greater than the number g-1 of endogenous variables appearing in it less 1[13]. In symbols,

$$(47) \quad k - J > g - 1$$

Where: k predetermined variables in the system
J predetermined variables in the system, but outside the i^{th} equation
g endogenous variables in the i^{th} equation

For estimation purposes, a problem is created in that the condition expressed in inequality (47) implies there are more estimating equations than unknowns. The equations are inconsistent and have no solution[14].

Fortunately, again the method of two-state least squares affords a solution. Our goal is to estimate the β and λ of equation (46). If we premultiply each term in (46) by D, the matrix of data for all the predetermined variables in the model, we obtain

$$(48) \quad m = D(M_1 \cdot R_1) \begin{pmatrix} \beta \\ \lambda \end{pmatrix} + D\epsilon$$

Next, using an Aitken estimator, since the elements of the disturbance vector $D\epsilon$ are not independent, we can derive an estimator of $(\beta\lambda)$ that is equivalent to two-state least squares. This estimator will be unbiased, consistent, and asymptotically normal[15].

The main goal in this study is to examine the influence of race on youth job search behavior. The method of investigation we have selected is regression analysis in which we are interested in comparing whether sets of coefficients in linear regressions for whites are equal to the sets of coefficients for blacks. Two statistical techniques were considered for analyzing the black/white differences.

The first technique involved an analysis of covariance in which we would have tested for differences in slopes in separate black and white regressions. The method, referred to as the Chow test, was rejected as inappropriate since the Chow test involves computing an F-ratio of regressions for separate and pooled samples[16]; whereas, two-stage least squares has no such summary statistic as an F-ratio. A second technique considered was that in which we investigate whether the intercepts differ by race, given the slopes are equal. This second method is analysis of variance. Recently, a pair of articles by Damodar Gujarati suggested a dummy variable technique that combines the richness of the Chow test with the analysis of the variance. As an example of the technique see the footnote below.

Equation (49) presents an example which shows the essence of this method in simplest form:

(49) $S = a_o + a_1 D + a_2 Y + a_3 (DYi) + U_i$

Where: $i = 1, \ldots, N_1 + N_2$ observations
S = Savings
Y = Disposable Income
D = A dummy variable equal to 1 for the war years; o otherwise
U_i = error term

This example is the familiar Keynesian consumption hypothesis where special consideration is given the effect of war years on the relationship between current savings and current disposable income. Notice the dummy variable D has been introduced in both additive and multiplicative forms. The slope coefficients a_1 and a_3 estimate the differential intercept and the different slope terms, respectively. The statistical significance of a_1 determines the whether or not the war affected autonomous spending. If a_1 is significant, the intercept for war years N_1 is given by $(a_1 + a_o)$; if a_1 is not significant, a_o is an estimate of the common intercept term of both sets. Similarly, a statistically significant a_3 indicates a marginal propensity to save of $(a_3 + a_2)$ for years N_1, and an m·p·s of a_2 is inferred if a is not significant

An amended form of the Gujarati dummy variable technique was used in the present analysis to estimate the differential impact of race on job search behavior. The technique was "amended" in that all explanatory variables were not muliplied by the variable race. There were two reasons: First, past empirical and theoretical grounds give us no reason to believe all of the exogenous variables specified in TABLE 3.1 will be different between race. Secondly, one of the fundamental assumptions underlying the classical linear model, assumption (2), was that no exact linear relationship exists among the exogenous terms. In addition, although an exact linear relationship may not exist, a serious condition is that where all or some of the explanatory variables are highly but not perfectly collinear.

The main difficulty with multicollinearity is that the precision of estimation falls so that separating the relative influences of the different explanatory terms becomes very difficult. For example, assume a regression equation given by:

$$(50) \quad Y = a + b \cdot x + c \cdot z$$

If a correlation exists between x and z, estimation of Y by both x and z may still be valid, but, the effect of a change in x (or z) upon y when z (or x) is conceptually held constant cannot be determined. There are three aspects to this loss of precision: specific estimates may have very large errors; these errors may be highly correlated; and the sampling variances of the coefficients will be very large[18].

There are several means of determining multicollinearity of the independent variables yet the ultimate decision as to what corrective recourse to make must be subjective[19]. One obvious solution is to select only highly independent variables for inclusion in an equation even though this means dropping from the equation a theoretically plausible variable.

Implied is a trade-off: proper theoretical model specification vs. reduced confidence in the empirical estimates to the extent high covariances exist. The decision regarding what constitutes a proper trade-off depends on the goal of the research. Two main goals of this study are: (1) to estimate solution values to the dependent variables of equations (38) - (41), or $\hat{W}$, C, Z, P*; and (2), to estimate the separate influences of selected economic, demographic and behavioral characteristics on $\hat{W}$, C, Z, P*. For goal (1) multicollinearity is less of a problem than for goal (2) where the statistical significance of the separate exogenous terms will be reduced due to the likelihood of very large errors in the estimators.

Because of the trade-off between theoretical specifications and empirical estimation, and because of the dual goals of the study, a fairly liberal judgement was made regarding a cut-off figure as to what did or did not constitute excessive multicollinearity. If the square of the simple correlation coefficient between any two predetermined variables R_i and R_j (for $i \neq j$) exceeded .40, then one of the variables was dropped from the equation in question. For the Gujarati dummy variable method described above, the data of TABLE 4.1 are the most important elements of the larger coefficient matrix.

TABLE 4.1 contains each of the original twenty predetermined variables of the job search model, two new varisbles for assets and risk attitude, and twenty-one new variables created by multiplying the dummy variable, race, with every other one of the predetermined variables. The issue is whether or not we can accept for inclusion in the job search model the multiplicative dummy variable forms since they may cause excessive multicollinearity. As earlier suggested, the question is really one of degree, or willingness to accept a theoretically valid variable even though it may cause errors

TABLE 4.1 SELECTED ZERO ORDER CORRELATION COEFFICIENTS OF PREDETERMINED VARIABLES IN THE JOB SEARCH MODEL

1.	$A \cdot R$	11.	$A_2 \cdot R$
R, Race	0.996	R, Race	0.695
A, Age	0.002	A_2, Interview Anxiety	0.629
2.	$E \cdot R$	12.	$A_3 \cdot R$
R, Race	0.993	R, Race	-0.130
E, Education	0.114	A_3, Achievement Value	0.708
3.	$B \cdot R$	13.	$S_1 \cdot R$
R, Race	0.339	R, Race	0.380
B, Number Dependents	0.624	S_1, if State Agency	0.636
4.	$L \cdot R$	14.	$S_2 \cdot R$
R, Race	0.227	R, Race	0.554
L, Informal	0.707	S_2, if Direct Application	0.604
5.	$Y \cdot R$	15.	$S_3 \cdot R$
R, Race	0.384	R, Race	0.570
Y, Non-Work Income	0.679	S_3, if Friends and relatives	0.547
6.	$V_1 \cdot R$	16.	$J \cdot R$
R, Race	0.242	R, Race	0.529
V_1, Assets 1	0.816	J, Average Weekly Contacts	0.257
7.	$V_2 \cdot R$	17.	$N \cdot R$
R, Race	0.373	R, Race	0.556
V_2, Assets 2	0.607	N, Weeks Last Job	0.604
8.	$W \cdot R$	18.	$O \cdot R$
R, Race	0.899	R, Race	0.570
W, Pay last job	0.189	O, if Service Occupation	9.547
9.	$(A_1F) \cdot (R)$	19.	$H \cdot R$
R, Race	-0.126	R, Race	0.647
A_1, Financial Risk	0.680	H, Wage Discrimination Score	0.612
10.	$(A_1P) \cdot (R)$	20.	$T \cdot R$
R, Race	0.156	R, Race	0.648
A_1P, Physical Risk	0.697	T, if Travel Problem	0.686
		21.	$Q \cdot R$
		R, Race	0.453
		Q, if Quit Last Job	0.578

in parameter estimation. Using the criteria mentioned above, if the squared simple correlation exceeds .40 we drop the multiplicative term. Thus, we are left with the following multiplicative form variables: 3, 7, 13, 14, 15, 16, 17, 21, where the numbers refer to corresponding entries in TABLE 4.1.

Another variable included in the theoretical specification but dropped from the empirical estimates is 0, the index of a low-paying occupation on the last job. The only place the variable appears is in equation (38) which estimates $\hat{W}$, the final supply wage. As W, the hourly pay of the last job, appears in equation (38) there is a serious theoretical question regarding whether or not these variables are measuring the same effect even though the simple correlation coefficient, -0.370, is well below the cut-off of TABLE 4.1. For this reason, the variable 0 was dropped from the model.

Empirical Results: Regression Analysis

In this section we present the regression estimates of the simultaneous-equation model of job search, formed by equation (38)-(41) of the last chapter. Unless otherwise indicated the estimation technique was two-stage least squares. In addition, the effect of race on the intercepts and slope is measured using the analysis of covariance method described above. TABLE 4.2 shows regression estimates for $\hat{W}$, the supply wage of the unemployed individual. Since the race variable, R, is not significant -.06 is the common intercept for both whites and blacks. For other variables we find support for several of the hypotheses suggested in TABLE 3.2. Specifically, time spent searching has a negative effect on the final supply wage ($a_1 < 0$). This follows the earlier work by Kasper, Sobel, and Holt, but differs sharply in one respect.

Kasper found the negative effect of search duration on the individuals'

TABLE 4.2 $\hat{W}$, THE SUPPLY WAGE EQUATION

Variables in Equation	(1) Partial Regression Coefficient	(2) t-Value	(3) Partial Regression Estimates Adjusted For Race: White	(3) Black
Constant Term	-.061	(.11)	-.061	-.134
R, Race	-.073	(1.00)		
Z Numbers Weeks Job Search	-.005	(.85)		
P*, Length Next Job	.002	(2.24)**		
A, Age	.062	(2.58)***		
E, Education	.047	(1.89)*		
L, Informal training	.001	(.17)		
W, Hourly pay last job	.173	(5.42)****		
A_1F, Financial Risk Index	.018	(.56)		
A_1P, Physical Risk Index	.007	(.25)		
A_2, Interview Anxiety	.094	(3.02)***		
S_1, if State Employment Agency	-.087	(1.10)	-.087	-.021
S_1 X Race	.066	(.58)		
H, Wage Discrepancy Score	.511	(7.09)****		
T, if Travel Problem	-.065	(1.16)		

Stars beside the t-value indicate statistical significance at the probability level as:

****	.001
***	.01
**	.05
*	.1

Mean of the dependent term, W, is $1.97
The coefficient of determination found when estimating by ordinary least squares was $R^2 = .37$.

Note: The terms in col. (3) are in keeping with the dummy variable method developed by Gujarati and explained in the text. The interpretation is that the effect of race on $\hat{W}$ operates both as an additive as well as a multiplicative parameter. Where no value appears in (3), the meaning is that the estimated coefficient is that of column (1).

asking wages to be statistically significant. We believe Kasper correct in his basic hypothesis regarding the relationship between these variables yet improper model specification rendered his results questionable. Once we eliminate the effects of age, education, attitudinal measures, and other predetermined variables as per their interaction with Z, the duration of search, we achieve consistent estimators of the supply wage equation. Consider TABLE 4.2.1 which presents estimation of the supply wage equation using the method of ordinary squares. Contrast the t-ratio of Z in TABLE 4.2.1 with that of TABLE 4.2. The former statistic is greater and follows the estimation procedure of Kasper. Ordinary least squares was used by Kasper to estimate a simple model involving one equation and two terms, asking wage and unemployment length. As we shall demonstrate, however, job search behavior is much more complex than Kasper suggested. Given the simultaneity of job search decisions, the proper statistical estimation method allows and corrects for interactions between endogenous variables.

For instance, the length of time on the next job, P^*, is an endogenous variable in the job search model. TABLE 4.2 shows that for a 10-week increase in expected work length, the individual's supply wage is greater by 2 cents per hour. Furthermore, the t-ratio greater than 2.00 supports a fundamental hypothesis of this study: proper specification of a job search model should be a simultaneous-equation model to allow for the interactions between key variables involving the costs and benefits of job selections.

Again consider the entries in TABLE 4.2.

The effect of age, education, and informal training on $\hat{W}$ all have the algebraic sign expected in TABLE 3.2. On the average, a one year

TABLE 4.2.1 $\hat{W}$, THE SUPPLY WAGE EQUATION
(Regression Estimates by Ordinary Least Squares)

Variables in Equation	Partial Regression Coefficient	t-Value
Constant	.078	.15
R, Race	-,020	.33
Z, Number Weeks Job Search	-.006	2.99***
P*, Length Next Job	.001	2.44**
A, Age	.059	2.56**
E, Education	.046	1.87*
L, Informal Training	.001	.25
W, Hourly Pay Last Job	.182	5.79****
A_1F, Financial Risk Index	.029	.98
A_1P, Physical Risk Index	.004	.15
S_1, If State Employment Agency	-.092	1.16
S_1 X R	.067	.60
H, Wage Discrepancy Score	-.515	7.42****
T, If Travel Problem	-.079	1.49

increase in a young man's age, increases his $\hat{W}$ by 6 cents.

Two variables stand out sharply as per their effect on $\hat{W}$. The first is W, the hourly pay the individual received on his last job. Results support the hypothesized positive relationship between last pay and the final supply wage and that is, a one dollar increase in last pay will cause a 17 cent per hour increase in $\hat{W}$. Yet adjustments do occur in the present supply wage. Comparison of the arithmetic means for W and $\hat{W}$ reveals a decline has transpired; the average pay on the last job was $2.35, whereas the average supply wage is $1.97. Some of this adjustment is picked up by the measure of H, the wage discrepancy score.

Ideally, the effect of the wage discrepancy score on W would have been measured using time series data to estimate the relationship indicated as:

$$(51)\quad \hat{W}_{t+1} = f\left[(H)\right]_t = f\left[\frac{\text{aspired wage} - \hat{W}}{\hat{W}}\right]_t$$

That is the individual sets an aspired wage and a minimum acceptance wage. Both wage rates are subjective and adjust over time. What we are suggesting is that differences between aspirations and realistic expectations at time t contribute to a higher or lower level supply wage at time t+1. Unfortunately the sample design did not permit exact estimation of this relationship. Rather the cross-section survey data allowed only an approximation of equation (51) using the same period, t, for both $\hat{W}$ and H. Nonetheless, we do find strong support for the hypothesis that the relative difference between aspirations and supply wage does cause a lower supply wage. Notice the partial regression coefficient of H in Table 4.2. A one percent increase in wage discrepancy score causes a 51 cent drop in the individual's supply wage. This result is supported by a t-ratio of 7.09.

As per the attitudinal variable, the risk measures have the expected sign but their t-ratios are too small to infer that the true population coefficients are different from zero. In TABLE 3.2 we hypothesized that interview anxiety would have a negative effect on $\hat{W}$. The regression coefficient of TABLE 4.1 shows that the effect is just the opposite as that expected. The greater the interview anxiety score the greater the final supply wage $\hat{W}$. Further research is needed to examine the influence of other variables in determining the interview anxiety score. Yet, the finding of this study that job interview anxiety influences final supply wage further supports the work of Sheppard and Belitsky who originally related interview anxiety to job search behavior.

The search variable S_1, was measured as a dummy variable equal to 1 if the last job was found through the state employment agency, and equal to 0 otherwise. Admittedly, this measure was an imperfect proxy for the formal hypothesis which referred to how the new job will be found. Results support the negative hypothesis ($a_{10} < 0$). The results, however, suggest the effect of race may interact with use of the state employment agency. Finding a job through such an office raises one's supply wage unless one is black.

Transportation problems have the expected sign ($a_{12} < 0$). Those restricted to walking or riding a bus are less able to seek out as many job openings as those with private means of transportation. The restricted sample size of jobs thus lowers the expected wage from job search.

We next consider the determinants of the cost of search per week. TABLE 4.3 presents regression estimates. Several variables have t-ratios greater than 2 and support the hypotheses listed in TABLE 3.3. Specifically, a one week increase in search time causes search costs to rise on the average by $10.50. Furthermore, since Z is an endogenous variable in the search model, the simultaneity argument is again supported.

Restricting discussion to those coefficients whose t-values are nearly 2.00, we see a difference between black and white youth as per the effect of two variables, Y and R, on C, the cost of search. In the first case, we see that white youth have lower search costs the greater Y; whereas black youth with higher non-work income sources also have higher search costs. As indicated in #9 TABLE 3.3, perhaps the black youth feel the financial security justifies greater search effort, while greater Y acts as disincentive to his white counterpart. A second racial difference is that for youth expected to find their next job through the state employment service. For white youth in this category, search costs are greater by $67.87 per week. It appears white youth travel more and may have been less apt to have quit their last job. TABLE A.7 and A.8 in the Appendix support this idea in that they reveal more whites have cars and were more apt to have quit their last job. For black youth expecting to find next job by S_1 search costs are reduced by more than $14.00 per week. Thus the state employment office appears to be providing relatively greater service to black youth which on equity grounds is probably necessary.

Another search technique S_2, direct application has the expected positive effect on the cost of search. Other variables such as age, and travel problems have the expected algebraic signs but low t-values preclude generalization. The coefficient of the dummy for race is negative but its statistical significance is too low to say that blacks and whites have different intercept figures. Thus, the common intercept

TABLE 4.3 C, THE COST OF SEARCH EQUATION

Terms in Equation	(1) Regression Coefficient	(2) t-Value	(3) Racially Different Regression Coefficients	
			White	Black
Constant Term	201.73	(1.50)	201.7	161.2
R, Race	-40.50	(1.57)		
Z, Number Weeks Job Search	10.51	(3.78)****		
A, Age	-11.35	(1.62)		
Y, Non-Work Income	- .07	(.62)	-.07	.30
Y X R	.37	(1.98)**		
V, Assets	.11	(1.30)		
A_1F, Financial Risk Index	-1.26	(.14)		
A_1P, Physical Risk Index	-7.03	(.81)		
S_1, if State Employment Agency	67.87	(2.59)***	67.87	-14.28
S_1 X R	-82.15	(2.35)**		
S_2, if Direct Application	42.57	(2.31)**		
S_3, if Friends or Relatives	10.75	(.71)		
J. Extensiveness of Job Search per Week	-1.42	(.74)	-1.42	-9.37
J X R	-7.95	(1.43)		
T, if Travel Problem	-25.72	(1.54)		

Asterisks indicate t-values that are statistically-significant at probability level

**** .001
*** .01
** .05
* .1

Mean of dependent variable, C is $50.86

Coefficient of determination for OLS estimate, $R^2 = .10$

for both groups is 201.17.

The duration of job search, Z, is a factor that has received wide theoretical and empirical attention. As mentioned earlier, the nature of the sample design in this study probably underestimates this figure albeit black/white comparisons should not be affected. The attention given Z in past research is supported in this study; as revealed here, the time spent in job search is the key endogenous variable which links together the various aspects of the job search model. This time-of-search measure is affected, in turn, by several other variables such as age, number of dependents, risk attitude, etc., as revealed in TABLE 4.4.

Unfortunately, most of the regression coefficients have rather low t-ratios, which means we really cannot infer whether the algebraic signs of the regression coefficients are indicative of the signs of the population parameters. There are, however, three exceptions. In TABLE 3.4, we expressed belief that asset wealth would enable the substitution of more leisure in place of work. Results show otherwise. The explanation may lie with the definition of assets. Car values were included in asset measures.

As the sign of t implies, those having a car have shorter search durations. Hence, the negative sign for the coefficient of V.

Risk attitude is a second measure that emerges as an important determinant of search duration. As shown in TABLE 4.4, a one percent increase in the physical risk index causes the duration of search to increase by nearly one and one-quarter weeks. The positive sign supports the hypothesis of TABLE 3.4.

The third variable with a high t-Value is the measure J, the extensiveness of job search. How many firms did you personally contact this

TABLE 4.4 **Z, THE NUMBER OF WEEKS OF JOB SEARCH**

Terms in Equation	Regression Coefficient	t-Value	Racially Different Regression Coefficients White	Racially Different Regression Coefficients Black
Constant Term	-21.82	1.79*	-21.82	-19.17
R, Race	3.62	1.38		
$\hat{W}$, The Supply Wage	4.52	1.22		
P*, Length Next Job	-.02	.77		
A, Age	.87	1.33		
B, Number of Dependents	-.05	.86	-.05	-1.79
B X R	-1.74	1.24		
Y, Non-Work Income	00	.36	.00	-.02
Y X R	-.02	.96		
V, Assets	-.01	-1.88*		
A_1F, Financial Risk Index	.61	.77		
A_1P, Physical Risk Index	1.24	1.74*		
A_3, Achievement Value Index	.24	.29		
J, Extensiveness of Job Search per Week	.19	1.01	.19	1.22
J X R	1.03	2.60***		
H, Wage Discrepancy Score	-1.08	.42		
T, If Travel Problems	2.44	1.59		
Q, if Quit Last Job	1.92	1.06	1.92	4.43
Q X R	2.51	.96		

Asterisks indicate t-values that are statistically significant at probability level.

**** .001
*** .01
** .05
* .1

Mean of Dependent variable, Z is 6.76 weeks
Coefficient of determination for OLS estimate is .21

week? The table reveals a racial difference as per the effect of J on the length of job search. The evidence suggests that both black and white youth who contact more firms per week search longer, and that this effect is more pronounced for blacks than for whites. Caution should be exercised in interpreting this unusual result since the sample included only those who were unemployed and the data was collected at a single moment in time.

The last equation in the search model concerns the length of time the individual expects to remain on the next job, P*. Of the four equations tested, this one most clearly reveals a difference between black and white youth. Notice the intercept values in TABLE 4.5. Following the Gujàrati technique, since the race variable has a high t-ratio, the ceteris paribus implication is that whites will work 46 weeks, blacks 107 weeks.

The longer the duration of search the shorter the expected work duration. The direction of this effect is the opposite of that predicted in TABLE 3.5. Perhaps a type of "discouraged worker" phenomenon occurs as job search lengthens. In this case, however, the adjustment response to not finding a job may be to lower one's expectations regarding the relative permanance of the next job. At some point, the man seeking full-time work may take whatever he can get, even if this means jobs of very short duration.

Other coefficients, in whose algebraic sign we may rely because of a high t-ratio, include the coefficients for J and N. The greater the extensiveness of job search, the longer the individual expects to remain on his next job. This effect is reversed in sign for blacks, yet the low t-value of the coefficient for J X R does not allow us to infer that, in fact, true population differences exist between whites and blacks as per

TABLE 4.5 P*, LENGTH NEXT JOB

Terms in Equation	Regression Coefficient	t-Value	Racially Different Regression Coefficients	
			White	Black
Constant Term	4.10	(.53)	46.10	106.89
R, Race	60.79	(4.09)****		
$\hat{W}$, Supply Wage	8.55	(.54)		
Z, Number Weeks, Job Search	-1.35	(1.06)		
A, Age	- .71	(.17)		
E, Education	-2.72	(.62)		
A_1F, Financial Risk Index	6.96	(1.41)		
A_1P, Physical Risk Index	- .84	(.17)		
A_3, Achievement Value Index	7.60	(1.51)		
J, Extensiveness of Job Search per Week	2.34	(2.21)**	2.34	- .56
J X R	-2.90	(1.04)		
N, Weeks Worked Last Job	1.06	(4.62)****	1.06	.13
N X R	- .93	(2.45)**		
B, Number Dependents	.58	(.10)		
B X R	7.66	(1.00)		

Asterisks indicate t-values that are statistically-significant at probability level

**** .001
*** .01
** .05
* .1

Mean of the dependent variable, P*, is 59.89 weeks

Coefficient of determination for OLS estimate, $R^2 = .15$

the effect of J on P*.

Finally, as expected, the longer the duration of the last job in weeks, the more weeks the individual expects to remain on his next job. This effect is positive for both whites and blacks alike, although the effect is much stronger for whites.

Empirical Results: Cost-Benefit Analysis

In Chapter Three, equation (37) defined Ø as the net wealth from job search, or the difference between the flows of search costs and search benefits over time. In this section we present and compare estimates of Ø for black and white youth. Several steps were involved in building the wealth estimates. First, separate regression estimates were made for black and white youth for the four equations of the job search model. Next, we found solution values by race for each of the endogenous variables of the search model, namely $\hat{W}$, C, Z, and P*. Finally, the race-specific solution values were used in equation (37) to compute estimates of Ø by race.

For expository purposes we repeat equation (37)

$$\emptyset = \sum_{t=Z}^{P^*} \frac{\hat{W}}{(1+r)^t} - \sum_{t=1}^{Z} \cdot C_t(1 + r)^t$$

Next, we present in tabular form the regression estimates for each equation by race. In each case the estimation technique was two-stage least squares. Although the form of the tables might cause one to compare coefficients between blacks and whites, it should be stressed that such comparisons are only suggestive, since the pooled sample regressions of the previous section tested for the difference between coefficients by race. Nonetheless, we do include t-ratios in the tables since the

TABLE 4.6 $\hat{W}$, THE WAGE EQUATION BY RACE

	WHITE YOUTH		BLACK YOUTH	
Term in Equation	Regression Coefficient	t-Ratio	Regression Coefficient	t-Ratio
Constant	.120	(.15)	.053	(.05)
Z, Number of Weeks Job Search	-.006	(.37)	-.001	(.11)
P*, Length Next Job	.001	(.84)	.006	(2.06)**
A, Age	.060	(1.77)**	.034	(.70)
E, Education	.040	(1.25)	.055	(1.04)
L, Informal Training	.005	(.64)	-.007	(.77)
W, Hourly Pay last Job	.193	(4.96)****	.100	(1.34)
A_1F, Financial Risk Index	.012	(.31)	-.027	(.33)
A_1P, Physical Risk Index	.001	(.03)	-.005	(.08)
A_2, Interview Anxiety	.084	(1.96)**	.124	(2.04)**
S_1, if State Employment Agency	-.095	(1.17)	-.016	(.15)
T, If Travel Problems	-.030	(.38)	-.082	(.70)
H, Wage Discrepancy Score	-.619	(5.02)****	-.297	(-1.96)
	R^2 for OLS = .38		R^2 for OLS = .39	
	N = 142		N = 139	
	Mean of W = 2.00		Mean of W = 1.93	

Asterisks indicate t-values that are statistically-significant at probability level

****	.001
***	.01
**	.05
*	.1

TABLE 4.7 C, THE COST OF SEARCH BY RACE

	WHITE YOUTH		BLACK YOUTH	
	Regression Coefficient	t-Ratio	Regression Coefficient	t-Ratio
Constant	-35.43	(.20)	266.26	(1.49)
Z, Number of Weeks Job Search	17.33	(2.85)***	6.29	(2.63)***
A, Age	- 1.17	(.13)	-15.19	(1.63)*
Y, Non-Work Income	- .07	(.70)	.19	(1.61)
V, Assets	.16	(1.00)	.08	(.94)
A_1F, Financial Risk Index	5.83	(.54)	1.83	(.14)
A_1P, Physical Risk Index	-20.22	(1.64)*	2.24	(.20)
S_1, if State Employment Agency	72.38	(2.65)***	-2.86	(.11)
S_2, if Direct Application	38.75	(1.65)*	43.88	(1.81)*
S_3, if Friends or Relatives	13.26	(.66)	13.73	(.69)
J, Extensiveness of Job Search per Week	-2.82	(1.42)	-3.84	(.75)
T, if Travel Problem	-6.44	(.30)	-34.03	(1.54)

Asterisks indicate t-values that are statistically-significant at probability level.

****	.001
***	.01
**	.05
*	.1

WHITE YOUTH	BLACK YOUTH
R^2 for OLS = .14	R^2 for OLS = .11
N = 142	N = 130
Mean of C = $58.08	Mean of C = $43.48

TABLE 4.8 Ƶ, DURATION OF JOB SEARCH BY RACE

	WHITE YOUTH		BLACK YOUTH	
Terms in Equation	Regression Coefficient	t-Ratio	Regression Coefficient	t-Ratio
Constant	- .350	.04	-35.400	1.16
$\hat{W}$, Supply Wage	2.170	.82	6.527	.67
P*, Length Next Job	- .002	.11	- .140	1.33
A, Age	.022	.03	2.107	1.46
B, Number of Dependents	-.092	.17	- 1.060	.61
Y, Non-Work Income	.003	.55	- .015	.73
V, Assets	-.015	(1.83)*	- .011	.92
A_1F, Financial Risk Index	-.380	.61	3.230	1.28
A_1P, Physical Risk Index	1.189	(1.98)**	1.880	1.11
A_3, Achievement Value Index	-.123	.17	1.450	.67
J. Extensiveness of Job Search per Week	.174	(1.68)*	.835	1.28
H, Wage Discrepancy Score	-.854	(.33)	3.912	.66
T, if Travel Problems	.282	(.21)	2.362	.53
Q, if Quit Last Job	1.779	(1.64)*	4.662	1.44

Asterisks indicate t-values that are statistically-significant at probability level.

**** .001
*** .01
** .05
* .1

R^2 for OLS = .12	R^2 for OLS = .22
N = 142	N = 139
Mean of Ƶ = 4.59	Mean of Ƶ = 8.98

TABLE 4.9 P*, THE LENGTH NEXT JOB SEARCH BY RACE

	WHITE YOUTH		BLACK YOUTH	
Terms in Equation	Regression Coefficient	t-Ratio	Regression Coefficient	t-Ratio
Constant	194.5	(2.29)**	10.17	(.07)
$\hat{W}$, Supply Wage	- 38.71	(2.81)***	53.96	(2.05)
$\hat{Z}$, Number of Weeks Job Search	- .72	(.35)	- 1.20	(.85)
A, Age	3.46	(.88)	.81	(.11)
E, Education	- 3.13	(.79)	- 4.30	(.53)
A_1F, Financial Risk Index	- 3.99	(.86)	15.36	(1.74)
A_1P, Physical Risk Index	- 6.66	(1.28)	4.37	(.53)
A_3, Achievement Value Index	5.46	(1.09)		
J, Extensiveness of Job Search per Week	2.33	(2.89)***	- .94	(.31)
N, Weeks Worked Last Job	1.16	(7.21)	.11	(.31)
B, Number Dependents	1.57	(.40)	3.72	(.54)

Asterisks indicate t-values that are statistically-significant at probability level.

**** .001
*** .01
** .05
* .1

R^2 for OLS = .33	R^2 for OLS = .15
N = 142	N = 1.39
Mean of P* = 49.11	Mean of P* = 70.9

analysis does offer insights as to determinants of job search behavior within each race.

Consider the entries in TABLE 4.6. To solve for the solution value of $\hat{W}$ in equation (37) for whites we used the regression coefficients listed in TABLE 4.6 as weights and summed the terms in the equation. For example, $\hat{W}$ for whites was estimated as \$2.01 per hour as follows:

$$\begin{aligned}(52)\quad \hat{W} = .12 &+ [-.006 \times Z] + [.001 \times P^*] + [.060 \times A] \\ &+ [.040 \times E] + [.001 \times L] + [.193 \times W] \\ &+ [.012 \times A_1F] + [.001 \times A_1P] + [.084 \times A_2] \\ &+ [-.095 \times S_1] + [-.619 \times H] + [-.030 \times T]\end{aligned}$$

A similar estimate of $\hat{W}$ was made for black youth and the same procedure followed by race for the remaining terms, C, Z, and P*. TABLE 4.10 presents these solution values.

TABLE 4.10 SOLUTION VALUES TO DEPENDENT TERMS IN JOB SEARCH MODEL BY RACE

Endogenous Term	Overall Average	White Youth	Black Youth
$\hat{W}$, Supply Wage	\$ 1.97	\$ 2.01	\$ 1.92
C, Cost of Job Search per Week	50.86	58.13	43.46
Z, Number of Weeks Job Search	6.76	4.60	8.97
P*, Length Next Job in Weeks	59.89	49.09	70.90

Notice that black youth have lower unit search costs than white youth. A sharp distinction between black and white youth is in the time estimated to remain on the next job. Sampling biases may have affected the respondent's answer to the question, "How long do you expect his job to last?" That is, being interviewed in a state employment office, although being assured that his participation in this study in no way affected his job seeking success through that office, may have prompted the client to answer in terms of "How long would you like for your next job to last?", or for the respondent to give a high figure, thinking the real question to be, "Are you really looking for a permanent job?" Nonetheless, the 49 and 71 week figures may be taken as upper limits to the benefit streams accruing to investment in job search. To adjust this fugure downward, we also provide private wealth estimates using time-on-the-last-job as the relevant future-job time horizon. The true solution probably lies somewhere between these limits.

TABLE 4.11 offers estimates as to the private wealth from investment in job search. As mentioned earlier, the figures were derived by inserting solution values to the job search model into the algorithm presented in equation (37). Of course, any solution in discounted present value term will be quite sensitive to the discount rate used in the computation. For this study, we selected annual rates of 16 percent for whites and 22 percent for blacks[20]. The figures are those found by Giora Hanoch and estimate the incremental internal rate of return to completion of the 12 years of high school by northern whites and northern blacks.

TABLE 4.11 TOTAL PRIVATE BENEFITS FROM INVESTMENT IN JOB SEARCH

	WHITE YOUTH		BLACK YOUTH	
	Upper Limit	Lower Limit	Upper Limit	Lower Limit
Total Wealth in Discounted Present Value Terms	$3365.34	$1415.93	$4306.98	$1000.22
Discounted Wage Stream	3658.62	1709.21	4706.42	1399.67
Accumulated Search Costs	293.27	293.27	399.44	399.44

As shown in TABLE 4.11, the question as to which group derives the greater benefits from job search depends on whether one considers the upper or lower time limit. In other words, the issue cannot be unambiguously determined. As per the accumulated cost of job search, black youth have lower per unit costs but since they search longer, this total search cost exceeds total search costs for white youth.

In the next chapter, we summarize the results of this study and offer a few suggestions as to what policy implications can be derived from these results.

FOOTNOTES CHAPTER IV

1. For discussion, see A. A. Walters, "The Theory and Measurement of Private and Social Cost of Highway Congestion," Econometrica, Vol. 29, No. 4, October 1961, pp. 676-699. Estimates of youth travel costs in this study applied appropriate consumer price index inflators to cost estimates given in TABLE III, p. 691 of the Walters article. Also see Leon N. Moses and Harold F. Williamson, Jr., "Value of Time, Choice of Mode, and the Subsidy Issue in Urban Transportation," Journal of Political Economy, June 1963 and Edwin S. Mills, Studies in the Structure of the Urban Economy, 1972.

2. Op.Cit., Walters.

3. Mollie Orshansky, "Shape of Poverty in 1966," in Perspective on Poverty and Income Distribution. James G. Scoville (ed.) (Heath & Co., Lexington, Mass., 1971), pp. 74-88. The article is a reprint with some omissions from an article originally appearing in the Social Security Bulletin, Vol. 31, March 1968, pp. 3-32.

4. J. Hirschleifer, James S. Milliman, et.al, Water Supply; Economics, Technology, and Policy (Chicago: Univ. of Chicago Press, 1960), Chapter VIII.

5. Central Edition, National Automobile Dealers Used Car Guide, December 1971, (Washington, D. C.: National Automobile Dealers Used Car Guide Company, December 1971), Vol. 38, No. 12, pp. 84.

6. Harold L. Sheppard, "The Value of Attitude and Opinion Measures in Manpower Evaluation Research," Paper presented at National Manpower Conference, Ohio State University, June 1971. Also see Harold L. Sheppard and A. Harvey Belitsky, The Job Hunt, (Baltimore: The John Hopkins Press, 1966).

7. Op.Cit., Sheppard,Belitsky,pp. 122-150.

8. For a non-technical explanation see R. J. Rummel, "Understanding Factor Analysis," Journal of Conflict Resolution, Volume XI, No. 4, 1967.

9. Jae-on Kim and Norman Nie, "Factor Analysis" in Statistical Package for the Social Sciences by Norman Nie, Dale H. Bent, C. Hadlai Hull (McGraw-Hill, Inc.: New York, 1970) pp. 208-244.

10. For example, Op.Cit., Sheppard and Belitsky, and David W. Stevens, Supplemental Labor Market Information As a Means to Increase the Effectiveness of Job-Search Activity (Institute for Research on Human Resources: Pennsylvania State University, 1968).

Errata Sheet
(This should follow p. 120)

FOOTNOTES CHAPTER IV (Continued)

11. The term "generalized classical least squares" was used by Robert Bassman, "A Generalized Classical Method of Linear Estimation of Coefficients in a Structural Equation," *Econometrica*, Vol., 25, No. 1, January, pp. 77-83.

12. Tjalling C. Koopmans, "Identification Problems in Economic Model Construction," *Econometrica*, Vol. 17, No. 2, April, 1949, pp. 125-144.

13. Carl F. Christ, *Econometric Models and Methods*, (New York: John Wiley and Sons, 1966), pp. 407-411. Strictly speaking equation (47) is a necessary but not sufficient condition for identification. However, the second requirement, the rank condition is also met here.

14. *Ibid*. p. 445.

15. *Ibid*. p. 446.

16. G. C. Chow, "Tests of Equality between Sets of Coefficients in Two Linear Regressions," *Econometrica*, Vol. 28, 1960, pp. 591-605.

17. Damodar Gujarati, "Use of Dummy Variables in Testing for Equality Between Sets of Coefficients in Linear Regressions: A note" *The American Statistician*, February, 1970, pp. 50-52. "Use of Dummy Variables in Testing for Equality Between Sets of Coefficients in Linear Regressions: A Generalization" *The American Statistician*, December, 1970, pp. 18-27.

18. J. Johnston, *Econometric Methods*, 2nd edition, (New York: McGraw-Hill Co., 1972), pp. 159-160.

19. See R. Frisch, *Statistical Confluence Analysis by Means of Complete Regression Systems*, University Economics Institute, Oslo, 1934. Also, D. E. Farrar and R. R. Glauber, "Multicollinearity in Regression Analysis: The Problem Re-visited," *Review of Economics and Statistics*, Vol. 49. pp. 92-107, 1967. Also *Op.Cit.*, Christ, pp. 389-390.

20. Giora Hanoch, "An Economic Analysis of Earnings and Schooling", *Journal of Human Resources*, Vol. 2, No. 3, Summer 1967, TABLE 3, p. 322.

CHAPTER V CONCLUSION

Four important points emerge from this study; the first concerns the different methods white and black youth use to find jobs.

The analysis of early job search literature consisted of drawing influences from tables on method of job search. Studies were distinguished by whether they divided such tables by characteristics like sex, age, education, occupation, level of unemployment, and in the case of Sheppard and Belitsky, attitudinal measures.[1] TABLE 5.1 presents such a table for this study. One clear finding is that black youth rely more on the state employment service to find jobs than do white youth. Further empirical results of this study provide clues as to why such differential behavior exists.

TABLE 5.1 How Last Job Found

	White Youth N = 142		Black Youth N = 139	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
State Employment Service	13	9.2	26	18.8
Direct Application	34	23.9	27	19.6
Friends and Relatives	77	54.2	68	49.3
Others	18	12.7	17	12.3

Black youth are less likely to have cars than their white counterparts. This restricts their coverage of a local labor market to firms they can reach on foot, by public transportation, or through a public intermediary, like the state employment office. Blacks rely on the latter source for information even though such reliance may force them to take a lower wage as indicated in TABLE 5.2. Furthermore, lack of private transportation by blacks causes their cost of search per week to be less than that for whites. The solution values to equation (39) reveal that the per week search costs for whites is $58. vs. $44. for blacks. However, because of differences in search length, 4.6 weeks for whites vs. 8.9 weeks for blacks, total search costs, defined as the product of search cost per week and weeks of search, are greater for blacks than for whites. This differential in total search costs probably bears on the differences in labor force participation rates for whites and blacks.[2] It may also account for blacks accepting jobs which they really don't want to keep but accept because of high search costs, as supported by national data which show black quit rates above whites.[3]

A second important finding concerns the theoretical job search models. Beginning with Stigler's seminal articles on the theory of job search, a good deal of effort has gone into development of a general model of job search. A common theme in these efforts has been to view the job searcher as sampling from a distribution of wage offers. For example, we have Stigler's sample of 44 University of Chicago MBA's who in 1960/61 cooly selected from an average of more than 3 offers each.[4] In the present study, however, results indicate that young, urban males in Indianapolis in 1971 did not have the same advantage as Chicago MBA's. The Indianapolis group were more likely to accept the first offer they received.

TABLE 5.2 DIFFERENCE OF MEANS TESTS BETWEEN SOLUTION VALUES TO SIMULTANEOUS-EQUATION MODEL OF JOB SEARCH

Variable	Number of Cases	Mean	Standard Deviation	Value	2-Tail Probability
W, Supply Wage per Hour					
White Youth	142	2.01	0.305	1.71	0.088
Black Youth	139	1.92	0.541		
C, Cost of Search per Week					
White Youth	142	58.13	108.860	1.26	0.208
Black Youth	139	43.46	84.546		
X, Length Search in Weeks					
White Youth	142	4.60	2.402	4.22	0.000
Black Youth	139	8.98	11.996		
P*, Length Next Job in Weeks					
White Youth	142	49.09	35.629	4.75	0.000
Black Youth	139	70.90	41.080		

For example, each of the 281 youth in this study had at least one job in the period 11/69 - 11/71. That is, they had at least 281 offers. TABLE 5.3 gives a frequency distribution for the number of other offers the youth received while searching for their last job. The data reveal that nearly 9 out of 10 white and black youth accepted their first offer. The implication of this finding for subsequent research is that differential wealth-maximizing rules might be applicable to different groups in the labor market. Older, white-collar workers may, in fact, be free to select one best offer among several. The results of this study, however, are that unemployed young men in Indianapolis do not select jobs in this manner. Hence, perhaps particular models are needed for explaining job search behavior of particular labor market sub-groups.

TABLE 5.3 NUMBER OF OTHER OFFERS

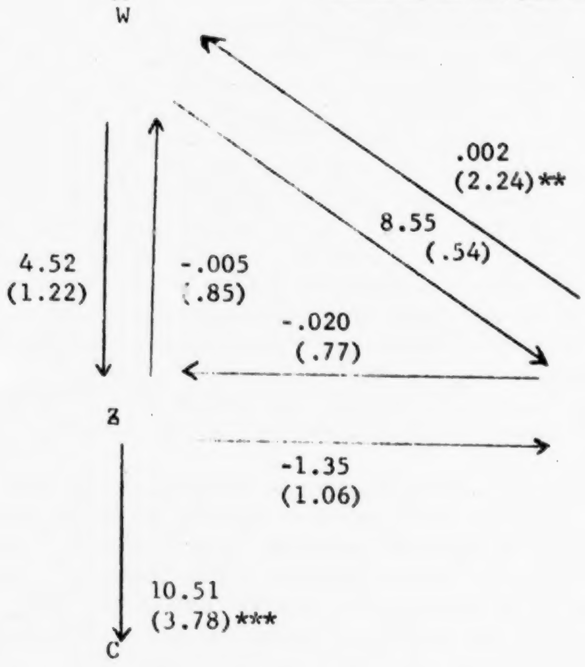
	White Youth		Black Youth	
Number of Other Offers	Absolute Requency	Relative Frequency	Absolute Frequency	Relative Frequency
0	125	88.0	125	89.9
1	12	8.5	9	6.5
2	2	1.4	3	2.2
3	1	0.7	1	0.7
4	0	0.0	1	0.7
5	1	0.7	0	0.0
9	1	0.7	1	0.7

A third result of this study, like the second point, has implications for theoretical job search analysis. Following Stigler's lead, writers like Alchian, Mortenson, and others have used job search models to explain cyclical macroeconomic unemployment changes[5]. Their reasoning goes somewhat as follows: after a fall in aggregate demand, the derived demand for labor falls, and there is a rise in real wages rates and a fall in employment. Wage expectations play a crucial role in increasing unemployment. Workers who are accustomed to receiving their "usual" or "normal" money wage are reluctant to accept a new, lower money wage in proportion to the new, lower product price. The reason is they believe the lower money wage to be particular to them and not to the general population. Hence they quit to search for other employment. Failure to make adequate downward adjustments in their money supply wage prolongs their search unemployment period. Presumably, better informed workers and/or workers making greater expenditures in looking for jobs will have different supply wage/search length adjustments than will job searchers with poor information and lower search costs. Nonetheless, following a fall in aggregate demand an adjustment period, or recognition lag, will occur due to imperfect information and this lag will raise unemployment accordingly. What evidence does the present study bring to light on this unemployment theory?

This study found the slower the decay rate in supply wage the longer the duration of search. Furthermore, black youth had longer search durations than their white counterparts. There are two factors which may have been responsible for this: racial differences in wage adjustments and in search costs. First TABLE 4.6 shows the supply wage of unemployed whites declined much faster than for blacks. Perhaps the white youths had better or more realistic labor market information through better informal contacts. Secondly, white search costs per week exceeded that of blacks. Perhaps spending more money in looking for work induced whites to make faster wage adjustments. Black youths with lower weekly search costs may not have felt compelled to make the downward wage adjustments as readily as white youths, hence the differential search length between white and black youth. The main point is that this study reveals some support for a microeconomic theory of unemployment based on individual wage expectations and job search costs.

A fourth and final result concerns the behavioral model of job search used in this study. In the past, empirical research on job search has focused attention on single-equation models which include economic and demographic data. This study fitted similar data as well as attitudinal data including risk attitude into a simultaneous-equation model. A strong implication of this study is that job search behavior involves the simultaneous consideration of the supply wage, the time on the next job, and the length and cost of looking for a job. Support for this contention arises from the theoretical model of job search and the empirical results revealed in the regression analysis. The entries in Figure 5.1 show the four endogenous variables of the search model together with partial regression coefficients and their t-ratios in parenthesis. Studies by Kasper, Holt, and Stevens have stressed the link between the supply wage, W, and the length of search, Z. Notice, however, that this study suggests that an intervening variable, time on the next job, provides an indirect link between the time spent searching and the supply wage.

Figure 5.1 Interrelationships Between Endogenous Variables in the Job Search Model



Where: Ŵ = Supply wage
Z = Duration of Unemployed Job Search in Weeks
C = Cost per Week Job Search
P*= Time on Next Job

Asterisks indicate t-values that are statistically significant at probability level.

*** .01
** .05
* .1

Future job-search studies should seek to compare the differential search behavior between different labor market sub groups: employed vs. unemployed searchers, blue-collar vs. white collar workers, etc. In addition, such analysis should attempt to collect micro-economic data over time so as to explicitly allow for dynamic behavioral adjustments. Finally, further work is needed in developing broader behavioral models of job search. The simultaneous-model presented here is a step in that direction.

Policy implications arising from this study are limited by the data base which included 300 young men from Indianapolis who were unemployed and seeking jobs in state unemployment offices in October, 1971. Nonetheless certain suggestions can be made.

1. Differential job search costs between white and black youth were found in this study. Search costs were defined as the sum of foregone income, travel costs, and miscellaneous expenses. Hence, part of the difference in weekly search costs can be explained by reference to TABLES A.7 and A.8 in the Appendix. These tables, respectively, show whites to be more likely to have quit their last job and more likely to have a car. Both reasons cause their weekly search costs to be greater than blacks. Yet blacks search longer and they have larger total search costs. Whether white search length is shorter than blacks because of these greater weekly search costs is an issue that was suggested, but one that needs further research. For now, if a policy goal is to reduce total black search costs, then measures to shorten the length of search for blacks and to provide travel assistance and job information are needed.

2. Attitudinal variables were found to affect job search behavior. Specifically, more interview anxiety caused a greater supply wage and greater risk attitude contributed to longer search length. The point is that in this study, attitudinal measures affected labor market behavior. The implication is that public employment agencies should begin to develop such measures so as to better assist unemployed clients seeking jobs.

3. It appears the basic cause of youth unemployment is tied to a mixture of aggregate demand and structural deficiencies. Most youth took the first job offer; hence, one could reduce youth unemployment by stimulating the economy and extending to youth more job offers. Yet, at the same time, there is the suggestion that black unemployment is greater than whites because the rate of decline in the black supply wage is below that of whites. Thus an added policy implication is counseling youth, especially black youth, to more readily adjust downward their wage demands.

FOOTNOTES CHAPTER V

1. For a review of this literature see Chapter II, this study.

2. Nation Participation Rates for young males are given as follows:

MALE LABOR FORCE PARTICIPATION RATES (annual averages)

	1960	1970
White		
16 to 19 years	58.8%	59.0%
20 to 24 years	89.1%	85.5%
Black		
16 to 19 years	56.8%	47.6%
20 to 24 years	87.8%	82.2%

Source: U. S. Manpower Report of the President, 1972,
U. S. Department of Labor, Superintendent of Documents,
U. S. Printing Office, Table E-4, p. 254

3. See analysis in Ralph E. Smith and Charles C. Holt, "A Job-Search Turnover Analysis of the Black-White Unemployment Ratio," A Working Paper, Washington, D. C., The Urban Institute,1971.

4. George J. Stigler, "Information in the Labor Market," Journal of Political Economy, Vol. 70, No. 5, Part 2, October, 1962, p. 94.

5. For a representative collection of such analysis see Edmund S. Phelps et.al., Microeconomic Foundations of Employment and Inflation Theory, (New York: W. W. Norton and Co., 1970).

6. See Chapter II, especially pp. 21-26.

APPENDICES

APPENDIX A

ADDITIONAL STATISTICAL TABLES

TABLE A.1 RACE

	Absolute Frequency	Relative Frequency	Cumulative Frequency
White	142	50.5	50.5
Black	139	49.5	100.0

TABLE A.2 AGE, Age in Years from Last Birthday

	Entire Age Group			White			Black		
Years	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%
18	78	27.8	27.8	36	25.4	25.4	42	30.2	30.2
19	74	26.3	54.1	32	22.5	47.9	42	30.2	60.4
20	65	23.1	77.2	44	31.0	78.9	21	15.1	75.5
21	64	22.8	100.0	30	21.1	100.0	34	24.5	100.0

TABLE A.3 EDUCATION, Years of Formal Education

	Entire Age Group			White			Black		
Years of Education	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%
8	5	1.8	1.8	4	2.8	2.8	1	0.7	0.7
9	18	6.4	8.2	13	9.2	12.0	5	3.6	4.3
10	61	21.7	29.9	31	21.8	33.8	30	21.6	25.9
11	74	26.3	56.2	26	18.3	52.1	48	34.5	60.4
12	123	43.8	100.0	68	47.9	100.0	55	39.6	100.0

TABLE A.4 Composite of Informal Skill Training

	Entire Age Group			White			Black		
Months Spent	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency	Cumulative Frequency%
0	192	68.3	68.3	04	66.2	66.2	98	70.5	70.5
1	23	8.2	76.5	7	4.9	71.1	16	11.5	82.0
2-5	19	6.7	83.2	9	6.3	77.5	10	7.2	89.2
6	25	8.9	92.1	20	14.1	91.5	5	3.6	92.8
7-48	22	7.9	100.0	12	8.4	100.0	10	7.2	100.0

Composite adds months spent in private training, federal manpower training, union apprenticship training, and military training (latter weighted at 6 months).

TABLE A.5 Number of Dependents

	Entire Age Group			White			Black		
Number	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%
0	172	61.2	61.2	74	52.1	52.1	99	70.5	70.5
1	53	18.9	80.1	33	23.2	75.4	20	14.4	84.9
2	34	12.1	92.2	22	15.5	90.8	12	8.6	93.5
3	15	5.3	97.5	10	7.0	97.9	5	3.6	97.1
4	4	1.4	98.9	2	1.4	99.3	2	1.4	98.6
5	2	0.7	99.6	1	0.7	100.0	1	0.7	99.3
7	1	0.4	100.0				1	0.7	100.0

TABLE A. 6 If Service Occupation

	Entire Age Group			White			Black		
CODE	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Absolute Frequency	Relative Frequency%	Cumulative Frequency%
0 = No	186	66.2	66.2	107	75.4	75.4	79	56.8	56.8
1 = Yes	95	33.8	100.0	35	24.6	100.0	60	43.2	100.0

TABLE A.7 If Quit Most Recent Job

CODE	Entire Group Absolute Frequency	Relative Frequency%	Cumulative Frequency%	White Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Black Absolute Frequency	Relative Frequency%	Cumulative Frequency%
0 = No	175	62.3	62.3	83	58.5	58.5	92	66.2	66.2
1 = Yes	106	37.7	100.0	59	41.5	100.0	47	33.8	100.0

TABLE A.8 If Transportation Problem

CODE	Entire Group Absolute Frequency	Relative Frequency%	Cumulative Frequency%	White Absolute Frequency	Relative Frequency%	Cumulative Frequency%	Black Absolute Frequency	Relative Frequency%	Cumulative Frequency%
0 = No	150	53.4	53.4	03	65.5	65.5	57	41.8	41.8
1 = Yes	131	46.6	100.0	49	34.5	100.0	82	59.0	100.0

APPENDIX B

JOB SEARCH QUESTIONNAIRE

Hello. My name is______________________________of the Department of Economics, Indiana University in Bloomington. I am conducting a study of the way in which people find jobs. You have been selected as one of the possible participants in this study. I would like to ask you a series of questions concerning your work experiences and the problems you may have had in finding a job, as well as some personal data on your background. The answers you give me will be kept confidential since this study is a statistical study.

First, I'd like to ask you a few questions to make sure that you are statistically eligible to be a member of the study. If you are eligible, based on the answers to these questions, we will pay you $5.00 if you will complete the rest of the questionnaire for us.

A. Identification

1. What is your name?____
2. Where do you live?____
   Street City State Zip

B. Determination of Client Eligibility

3. Ethnic origin of respondent. (By observation of person or his BES Records only.) Omit persons of oriental background or with Spanish surname or American Indian. White_____Black_____.

4. Could you please tell us when you were born?______________Month/Year. (If respondent was born between October 1, 1949, and December 1, 1953, then go on to Question 5; otherwise, the person is eligible.)

5. a. How many years of schooling you you completed?_______to nearest year. (If the number is less than 8 or greater than 12, then respondent is ineligible.)

   b. Are you currently attending high school full time? Yes_____ No_____(If yes, the person is enligible.)

6. Are you seeking full-time work? Yes____No____(If no, then the person is ineligible)

7. Are you currently unemployed? Yes____No____(If no, then the person is ineligible.)

8. We are interested in your work history over the past two years which lasted more than two weeks in a row?____________(If the answer is no jobs, then the person is ineligible.)

C. Education and Training

9. a. What is your present military status?________________________

   b. Have you ever served in the Armed Forces? Yes___No____(If no, go to Question 11).

10. a. (If answer to No. 9 is Yes,) please give period, from ________________ to ________________.
month/year month/year

b. Did you receive specialized training while in the Armed Forces? Yes____No____(If Yes, type________________).

11. Have you ever participated in a federally sponsored manpower training program such as the Job Corps, NAB-JOBS, the Neighborhood Youth Corps, (If No, go to Question 13).

12. a. (If Yes to No. 11) which program(s)________________

b. (If Yes) When? From________________to________________
month/year month/year

13. Have you ever attended training classes given by an employer which gave you instructions for a specific job? Yes____No____. (If No, go to Question 15).

14. a. (If Yes to No. 13) please tell me the weeks or days in program________________and hours per day__________.

b. What was your wage rate/hour during this training? __________$/hour or none__________.

15. a. Have you ever been (or are you now) enrolled in a union apprenticeship program? Yes____No____(If No, go to No. 16).

b. What skill were you being trained for?________________

c. When were you enrolled? From________________to________________
month/year month/year

16. Have you ever been enrolled in a special program designed to train you for entry into an apprenticeship program? Yes____No____

17. a. Have you had any other training in a private vocational or vocational-technical school? Yes___No____

b. If yes, what were you being trained for?________________

c. When did you take it? From________________to________________
month/year month/year

d. How many hours/week?__________hrs/wk.

D. Labor Market History

We would like to ask you about each job lasting more than two weeks you've had in the last two years. Could you please start with the most recent job and work backwards?

	Most Recent	Next Most Recent	Next Job
18. a. What was each job called? That is, what did you do?			
b. When did you start this job? START	month/year	month/year	month/year
c. When did you leave this job? LEAVE	month/year	month/year	month/year
19. a. What was your hourly pay before deductions when you began this job?			
b. At the time you left this job, what was your pay per hour?			
c. What were the fringe benefits of your job? That is, for this job:			
1. Did you have pension plan?	yes/no	yes/no	yes/no
If yes, was it contributory or noncontributory?	con/non	con/non	con/non
If yes, what was the employer contribution per week or month	$	$	$
2. Did you have health insurance?	yes/no	yes/no	yes/no
If yes, was it contributory or noncontributory?	con/non	con/non	con/non

	Most Recent	Next Most Recent	Next Job
If yes, what was the employer contribution per week of month?	$	$	$
3. Did you have supplementary unemployment benefit plan?	yes/no	yes/no	yes/no
If yes, was it contributory or noncontributory?	non/con	non/con	non/con
If yes, what was the employer contribution per week or month?	$	$	$
20. On the average, how many hours per week did you work?			
21. How did you hear about this job?			
State Employment Service?	yes/no	yes/no	yes/no
Direct Application?	yes/no	yes/no	yes/no
Friends and Relatives?	yes/no	yes/no	yes/no
Other, Specify			
22. What did the company you worked for do or make?			
23. Before you found this job, how many weeks did you have to look for work?			
24. While you looked for this job, were you still working at another job?	yes/no	yes/no	yes/no

	Most Recent	Next Most Recent	Next Job
25. How many offers did you receive before accepting this particular job?			
26. What is total amount of money you spent looking for this job? That is,			
a. How many miles did you travel per day in your job search?			
b. What was your method(s) of travel?			
c. Estimated travel cost (to be filled in later)	$	$	$
d. Did you write any letters in searching for work before obtaining this job?			
e. Did you manke any long distance phone calls while searching?	yes/no	yes/no	yes/no
f. If yes, what would you estimate as cost?	$	$	$
g. Did you have to move to take this job?	yes/no	yes/no	yes/no
h. Moving costs after job was found.	$	$	$
i. How much did you spend in fees to private placement agencies?	$	$	$
j. What other expenses did you have in searching for this job? Please Specify.	$	$	$

	Most Recent	Next Most Recent	Next Job
Total Cost estimate (to be filled in later)	$	$	$
27. For each job, could you please give an estimate of the following costs:			
Union member?	yes/no	yes/no	yes/no
a. Union dues per month?	$	$	$
b. Meal costs/day or week	$	$	$
28. a. Could you tell me how you usually traveled to each job? (Check the answer) Show card #1			
car..............			
car pool.........			
public transportation.........			
taxi.............			
walk.............			
other............			
b. How long would you estimate you traveled in minutes from your home to work?			
c. How many miles did you travel one way?			
29. How much did it cost to travel one way? This question refers to price per trip given the travel mode stated in question 28.	$	$	$

	Most Recent	Next Most Recent	Next Job
30. Why did you leave this job? (Show card #2)			
Layed off (Production temporarily slowed down, expected recall)	______	______	______
Layed off (Permanent, no expectation of recall)	______	______	______
Fired	______	______	______
Quit voluntarily	______	______	______
Health reasons	______	______	______
Other	______	______	______

(If answer is "quit" go to question #31; otherwise, go to question #32.)

	Most Recent	Next Most Recent	Next Job
31. If you quit voluntarily, why did you quit? (Show card #3)			
Working conditions	______	______	______
Returned to training	______	______	______
Management	______	______	______
Low wage rate	______	______	______
Little chance of promotion	______	______	______
Distance of job from home	______	______	______
Other (please explain)	______	______	______

E. Periods When You Were Not Working Since You Left High School. Now we would like to ask you about those periods since you left high school when you were not working or did not have a job.

32. Since you left high school, were there any periods of one month or longer when you were not working or did not have a job?

YES______IF YES, PLEASE ANSWER QUESTIONS 33 THROUGH 39 FOR EACH PERIOD.

NO______IF NO, GO TO QUESTION 40.

	Most Recent Period	Next Most Recent Period
33. When did this period of not working or not having a job begin and end?	From:______ mo/yr To:______ mo/yr	From:______ mo/yr To:______ mo/yr
34. Why was it that you were not working or did not have a job?	______ ______	______ ______
35. How much, if any, unemployment compensation did you collect each week during this period of time when you were not working or did not have a job? IF NONE, GO TO QUESTION 37.	NONE OR $_____/	NONE OR $_____/
36. For how many weeks did you collect this?	WEEKS______	WEEKS______
37. In what other ways (besides unemployment compensation) did you get help during this period? (Show card #4)		
Welfare aid	______	______
Other earners in family (such as wife or parent)	______	______
Loans	______	______
Savings	______	______
Piled-up bills	______	______
Sold car	______	______
Veterans	______	______
Benefits	______	______
Other	______	______
38. If help was received from any source other than unemployment compensation, how much did it amount to per week?	______/week	______/week

	Most Recent Period	Next Most Recent Period
39. How many weeks did you receive this help?	________weeks	__________weeks

40. a. Has your family always lived in Indianapolis? Yes___No___

b. Where did you live before moving here?_______________

c. When did you move here?_________year

41. What was the highest grade in school your father finished?

____

42. Who is the head of the household in which you live?

I am__________Other_______________.

43. For the past two years, please check the items that best describe your marital status:

a. Year 1 (Immediate past 12 months): Married_____Single___ Widowed_____Separated or Divorced_____

b. Year 2 (12 months previous to Year 1): Married____ Single____Widowed____Separated or Divorced_____

(If respondent checks "single" for both years, go to #45.)

G. Other Family Earnings

44. (If respondent is or has been married)
How much did your wife receive from wages, salary, commissions, or tips from all jobs, after deductions for taxes (or take home pay) or after any other deductions?

1971 $________or none_______ 1970 $__________or none________

45. During the last two years (24 months) did you receive any financial assistance from relatives, such as your parents?

a. First 12 months Yes_____No_____(if yes) How much? $______
Second 12 months Yes_____No_____(if yes) How much? $______

b. If yes, how much on the average per month?

First 12 months $___________
Second 12 months $___________

50. Did either you (or your wife, if married) receive any income because of disability or illness such as Workmen's Compensation?

a. Yes_____ No_____ If no, skip to #51.

b. How much per month? First 12 months Respondent $_______
Wife $_______

Second 12 months Respondent $_______
Wife $_______

I. Assets

51. Concerning the house in which you now live, do you own it, or do you rent it, or do you live with parents or relatives?

a. Bought_____(go to #52) b. Rented_____(go to #53)

c. Lives with parents or relatives_____(go to #53)

52. a. What would you judge is the current market value of your house? $_________________

b. Can you estimate how much you owe in back taxes or mortgages on this property? $_______________

53. Can you estimate how much money you have in savings and checking accounts, savings and loan companies, or credit unions? $______________.

54. a. Do you own any stocks, bonds, or mutual funds? Yes______ No_____(If no, go to #55

b. If yes, what is their approximate market value? $_________

55. Do you own or have investments in a farm, business, or any real estate?

a. Yes_____ No_____ (If no, skip to #56)

b. If yes, what would you judge the market value of this property to be after paying off any debts or liabilities on the property or business? $___________________.

56. Do you own a car(s)?

a. Yes_____ No_____ (If no, go to Section J)

b. What is the year and make of the car(s)?
Car 1 Year_______ Make____________ Body Style____________

Car 2 Year_______ Make____________ Body Style____________

c. What did you pay for the car(s)? Car 1 $_________________
Car 2 $_________________

d. Do you owe any money on this car(s) Yes____No____How many payments?_____How much is each payment per month? _______(Note: Blue Book values will be used to determine the market value of the car(s).)

J. Current Job Search Period

57. How many weeks have you been looking for work?_______________

58. When did your current period of not working or not having a job begin?________________________________
month/year

59. a. How many methods or ways of finding a job can you list?

1) Number __________ 2) List_______________ _______________
_______________ _______________
_______________ _______________
_______________ _______________
_______________ _______________

b. What methods of job search have you used in this period?
____
____
____

60. What hourly wage rate or weekly take home pay would you like to earn on this job you are looking for? $________________ hourly wage rate/weekly take home pay.

61. What is the minimum hourly wage rate or minimum weekly take home pay you would accept at present? $__________________ hourly/weekly (circle one)

What was the maximum hourly wage rate or minimum weekly take home pay you would have accepted when you first became unemployed? Same________________Other__________________.

62. Do you expect on the average your next wage will be (check one)

above________ the wage on your last job? (Identify
above the same_______ most recent job as given in No. 19)
below________

63. How long do you expect this job to last?____________number of months. (Do not accept "Don't know" as an answer. Get the respondent's best estimate.)

64. What are your current sources of support during this period of job search? (Check all that apply) (Show card #5)

_____None
_____Other earner(s) in household (such as wife or parent)
_____Unemployment compensation
_____Welfare aid
_____Loans
_____Savings
_____Veteran's benefits
_____SUB (Supplementary unemployment benefits)
_____Sold car or other asset
_____Other (Please explain)________________________

65. a. Do you limit your job search to a particular geographical area? Yes/No (If yes, go to b.)

b. Please give the way in which you make the limit. (Please give the answer in number of miles or minutes.)
__________Minutes driving to, walking to, or riding to work
__________Miles in radius from your house
__________Other (Please specify)____________________

66. a. What is your current weekly income while seeking work?
$_________None________

b. Are you eligible for unemployment compensation? Yes______ No_______ Unknown_______(If yes, go to c.,; if no, go to No. 68.)

c. How much of your current weekly income is unemployment compensation? $_____________or all_____________.

67. How many firms have you contacted in person while currently looking for work? Please work from the present backwards in time.

	Current Week	Last Week	3rd Week	4th Week or 1st Week You Became Unemployed
68. Personal contacts (by week of UE period	________	________	________	______________
How many firms have you contacted by phone?	________	________	________	______________

69. Did you begin job search the first day you were unemployed?

a. Yes_____ No_____

b. (If no) How many days after being unemployed did you begin looking for a job?__________________

c. (If no) Did you expect to be recalled to your old job? Yes_____No_____ How many weeks did you wait for them to call you back?_____________weeks.

70. a. Have you considered jobs outside of Indianapolis? Yes____ No_____

b. If you were to be offered a job in another part of the state, such as Gary, Evansville, or Ft. Wayne, what hourly rate would you need, assuming you worked a 40 hour week? $_______________

71. Some people look for a certain time and take the best job they find in that period. For others, a "desired" wage is sought and the length of search is uncertain. For still others, some combination of strategies may be used. In general, which of the following three alternatives would you say best describes your approach to job search:

a. Look for a certain time, say a week or day, and take the best offer in that period. Yes___No___ (If yes, to to No. 72)

b. Look for an approximate or indefinite length of time until your desired hourly (or weekly) rate is found. Yes_____ No_____ (If yes, to to No. 73)

c. Other (Please specify)___________________________________
(Go to No. 72 or No. 73, depending on answer)

72. How many more weeks will you look for a job before accepting the best offer?_____________(Skip to No. 76)

73. If you cannot find a job at $_________per hour (same rate as No. 61), what will you do?

i_______Stop looking altogether (If checked, skip to No. 76)
ii______Select a lower "desired rate" (If checked, go to No. 74)
iii_____Other (Specify)__________________________(If checked, skip to No. 76)

74. (If 73ii is checked) What is this lower rate?____________$/hour.

75. (If the rate given in No. 73 differs from that given in No. 74, ask) After how many more weeks will you change your rate from No. 73 to that of No. 74?_______

76. How much money have you spent in this current job search period? That is,

a. Miles traveled per week in job search______________________

b. Method of travel:
(Show card No. 6)

car (miles) ________________
public transportation
(miles) ________________
taxi (miles) ________________
walk (miles ________________
other (please specify)
(miles) ________________

c. Have you written any letters in seeking a job? Yes___ No_____

d. Have you made any long distance phone calls concerning your next job? Yes_____No_____If yes, what do you estimate as cost? $________________

e. Do you expect to have to move in order to take your next job? Yes____No____If yes, where________________________. If yes, estimated moving cost $__________________.

f. How much do you expect to pay in fees to private placement to find your next job? $________________

g. What other expenses do you think you will have in this current job search period?

Please specify____
Cost $____________________

77. Do you feel employers discriminate against hiring you based on your

a. Age Yes____No____
b. Ethnic origin Yes____No____

78. Does this possibility of discrimination cause you to avoid applying for work at certain firms where you feel this practice exists? Yes___No___

K. General Labor Market Information

79. What would you estimate is the current unemployment rate

a. For the Nation?________% ____________Don't know

b. For Indianapolis?_______% ____________Don't know

80. Would you say the unemployment rate: For youth aged 18-21 is

_______above
_______about the same
_______below

the overall unemployment rate for this year?

81. Are you looking for the same kind of work as your last job?
Yes_____No_____

82. a. At present, what would you say is the average hourly rate (or weekly earnings) in Indianapolis for the same kind of work as your last job? $__________
Don't know_________

b. Do you have in mind a certain kind of work you would like to do in your next job? Yes___(If yes, go to d.) No___
(If no, skip to No. 83)

c. Please specify the kind of work you are seeking?_________
____

d. What would you say is the average hourly rate (or weekly earnings) for work of this type in Indianapolis? $________
Don't know_________

L. Interview Anxiety, A_2

83. I would like you to tell me something about the way you feel when you know you will be interviewed for a job. At that time, do you feel: Very sure of yourself?_____Fairly sure of yourself?_____A little sure of yourself_____Very unsure of yourself?_____

84. Before being interviewed for a job, some people are aware of an "uneasy feeling." How about yourself? At that time, are you: Very much aware of it?_____Quite aware of it?_____A little bit aware of it?_____Not aware of it at all?_____

85. Before being interviewed for a job, would you say that your heart beats: No faster than usual?____Somewhat faster than usual?____Much faster than usual?_____Very much faster than usual?____

86. Before being interviewed for a job, how moist do the palms of your hands become? Are they: Very moist?____Fairly moist?____Just a bit moist?_____Not moist at all?_____

87. Before being interviewed for a job, do you worry: Very much?
_____A fair amount?_____Hardly worry?____Not worry at all?_____

88. Before being interviewed for a job, do you perspire: Very much?
_____A fair amount? _____ Just a bit?_____ Not at all?_____

89. Before being interviewed for a job, how nervous would you say you usually feel? Very nervous?_____Fairly nervous?_____a bit nervous?_____

90. After being interviewed for a job, how much do you worry about the results? Not at all?_____Just a bit?_____A fair amount?
_____A great deal?_____

M. Achievement Values* A_3

Now I'd like to get your reactions to some things that people have different opinions on. Do you strongly agree, agree, disagree or strongly disagree with these statements? (READ EACH ITEM AND THE RESPONSE ALTERNATIVES) (Show card No. 7)

91. In his work, all a person should want is a secure, not-too-difficult job with enough pay for a nice car and home.
SA_____A_____DA_____SDA_____

92. The wise person lives for today and lets tomorrow take care of itself.
SA_____A_____DA_____SDA_____

93. When a person is born, the success he will have is in the cards, so he may as well accept it.
SA_____A_____DA_____SDA_____

94. It is best to have a job as part of an organization all working together, even if you don't get individual credit.
SA_____A_____DA_____SDA_____

95. Don't expect too much out of life and be content with what comes your way.
SA____A____DA_____SDA_____

96. Planning only makes a person unhappy since your plans hardly ever work out anyway.
SA_____A_____DA_____SDA_____

N. Risk Attitude*** A_1P, A_1F

Now I would like to ask a few questions about your likes and dislikes and habits in everyday life. There are no right or wrong answers to these questions; one answer can be just as good as some other answer. (Show card No. *)

97. Do you like to bet with very small stakes just for the kick you get out of gambling? Yes____Cannot decide_____No_____

---

*Questions appearing in Sections L and M were taken directly from: Harold L. Sheppard and A. Harvey Belitsky, *The Job Hunt*, Baltimore, Maryland: The John Hopkins Press, 1966, pp. 239-240, and p. 258.

**Questions Nos. 95-101 are adapted selections from G. H. Shure and R. J. Meeker, "A Personality/Attitude Schedule for Use in Experimental Bargaining Studies, *The Journal of Psychology*, 1967, Vol. 65, pp. 233-252.

98. Would you like to race with stock car drivers? Yes_____ Cannot decide_____No_____

99. Do you like to play games and bet on your chances of winning? Yes_____Cannot decide_____No_____

100. Would you like to drive a "hot rod" in a race? Yes_____ Cannot decide_____No_____

101. Do you like to bet money on athletic events? Yes_____ Cannot decide_____No_____

102. Would you like to be a test pilot? Yes_____Cannot Decide _____No_____

103. Would you like to work as a flying trapeze acrobat in a circus? Yes_____Cannot decide_____No_____

104. If I offered you $10 now or $15 in 10 days, which would you prefer? $15 in 10 days_____Cannot decide_____$10 now_____

105. Which would you prefer, a job which paid you a lot per week but left you with the chance of frequent unemployment or a lower paying but steady employment job: High Pay, Frequent UE_____ Cannot decide_____Low pay, steady_____

VITA

Stanley P. Stephenson, Jr.

Age: 29 years

U.S. Citizen

Educational Career:

B.A. Ball State University, 1965

M.A., Indiana University, 1968

Present Occupation:

Staff Economist, Gary Income Maintenance Experiment